NEW YORK STATE OF OPPORTUNITY. Workers' Compensation Board

Medical Treatment Guidelines

Neck Injury

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Contributors

The NYS Workers' Compensation Board would like to thank the members of the New York Workers' Compensation Board Medical Advisory Committee (MAC). The MAC served as the Board's advisory body to adapt the American College of Occupational and Environmental Medicine (ACOEM) Practice Guidelines to a New York version of the Medical Treatment Guidelines (MTG). In this capacity, the MAC provided valuable input and made recommendations to help guide the final version of these Guidelines. With full consensus reached on many topics, and a careful review of any dissenting opinions on others, the Board established the final product.

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A. General Guideline Principles

The principles summarized in this section are key to the intended application of the New York State Medical Treatment Guidelines (MTG) and are applicable to all Workers' Compensation Medical Treatment Guidelines.

A.1 Medical Care

Medical care and treatment required as a result of a work-related injury should be focused on restoring functional ability required to meet the patient's daily and work activities with a focus on a return to work, while striving to restore the patient's health to its pre-injury status in so far as is feasible.

A.2 Rendering Of Medical Services

Any medical provider rendering services to a workers' compensation patient must utilize the Treatment Guidelines as provided for with respect to all work-related injuries and/or illnesses.

A.3 Positive Patient Response

Positive results are defined primarily as functional gains which can be objectively measured. Objective functional gains include, but are not limited to, positional tolerances, range of motion, strength, endurance, activities of daily living (ADL), cognition, psychological behavior, and efficiency/velocity measures which can be quantified. Subjective reports of pain and function may be considered and given relative weight when the pain has anatomic and physiologic correlation in proportion to the injury.

A.4 Re-Evaluate Treatment

If a given treatment or modality is not producing positive results within a well-defined timeframe, the provider should either modify or discontinue the treatment regime. The provider should evaluate the efficacy of the treatment or modality 2 to 3 weeks after the initial visit and 3 to 4 weeks thereafter. These timeframes may be slightly longer in the context of conditions that are inherently mental health issues, and shorter for other non-musculoskeletal medical conditions (e.g. pulmonary, dermatologic etc.). Recognition that treatment failure is at times attributable to an incorrect diagnosis a failure to respond should prompt the clinician to reconsider the diagnosis in the event of an unexpected poor response to an otherwise rational intervention.

A.5 Education

Education of the patient and family, as well as the employer, insurer, policy makers and the community should be a primary emphasis in the treatment of work-related injury or illness. Practitioners should develop and implement effective educational strategies and skills. An education-based paradigm should always start with communication providing reassuring information 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 and prevention of future injury.

Time Frames

A.6 Acuity

Acute, Subacute and Chronic are generally defined as timeframes for disease

stages:

- Acute – Less than one month
- Subacute - One to three month, and
- Chronic - greater than three months.

A.7 Initial Evaluation

Initial evaluation refers to the acute timeframe following an injury and is not used to define when a given physician first evaluates an injured worker (initial encounter) in an office or clinical setting.

A.8 Diagnostic Time Frames

Diagnostic time frames for conducting diagnostic testing commence on the date of injury. Clinical judgment may substantiate the need to accelerate or decelerate the time frames discussed in this document.

A.9 Treatment Time Frames

Treatment time frames for specific interventions commence once treatments have been initiated, not on the date of injury. It is recognized that treatment duration may be impacted by disease process and severity, patient compliance, as well as availability of services. Clinical judgment may substantiate the need to accelerate or decelerate the time frames discussed in this document.

A.10 Delayed Recovery

For those patients who fail to make expected progress 6-12 weeks after an injury and whose subjective symptoms do not correlate with objective signs and tests, reexamination in order to confirm the accuracy of the diagnosis and re-evaluation of the treatment program should be performed. When addressing a clinical issue that is not inherently a mental health issue, assessment for potential barriers to recovery (yellow flags/psychological issues) should be ongoing throughout the care of the patient. At 6-12 weeks, alternate treatment programs, including formal psychological or psychosocial evaluation should be considered. Clinicians must be vigilant for any pre-existing mental health issues or subsequent, consequential mental health issues that may be impacting recovery. For issues that are clearly and inherently mental health issues from the outset (i.e. when it is evident that there is an underlying, work-related, mental health disorder as part of the claim at issue), referral to a mental health provider can and should occur much sooner. Referrals to mental health providers for the evaluation and management of delayed recovery do not indicate or require the establishment of a psychiatric or psychological condition. The evaluation and management of delayed recovery does not require the establishment of a psychiatric or psychological claim.

Treatment Approaches

A.11 Active Interventions

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 and palliative interventions are viewed as a means to facilitate progress in an active rehabilitation program with concomitant attainment of objective functional gains.

A.12 Active Therapeutic Exercise Program

Active therapeutic exercise program goals should incorporate patient strength, endurance, flexibility, range of motion, sensory integration, coordination, cognition and behavior (when at issue) and education as clinically indicated. This includes functional application in vocational or community settings.

A.13 Diagnostic Imaging And Testing Procedures

Clinical information obtained by history taking and physical examination should be the basis for selection of imaging procedures and interpretation of results. All diagnostic procedures have characteristic specificities and sensitivities for various diagnoses. Usually, selection of one procedure over others depends upon various factors, which may include: relative diagnostic value; risk/benefit profile of the procedure; availability of technology; a patient's tolerance; and/or the treating practitioner's familiarity with the procedure.

When a diagnostic procedure, in conjunction with clinical information, provides sufficient information to establish an accurate diagnosis, a second diagnostic procedure is not required. However, a subsequent diagnostic procedure including a repeat of the original (same) procedure can be performed, when the specialty physician (e.g. physiatrist, sports medicine physician or other appropriate specialist) radiologist or surgeon documents that the initial study was of inadequate quality to make a diagnosis. Therefore, in such circumstances, a repeat or complementary diagnostic procedure is permissible under the MTG.

It is recognized that repeat imaging studies and other tests may be warranted by the clinical course and/or to follow the progress of treatment in some cases. It may be of value to repeat diagnostic procedures (e.g., imaging studies) during the course of care to reassess or stage the pathology when there is progression of symptoms or findings, prior to surgical interventions and/or therapeutic injections when clinically indicated, and post-operatively to follow the healing process. Regarding serial imaging, (including x-rays, but particularly CT scans), it must be recognized that repeat procedures result in an increase in cumulative radiation dose and associated risks.

A given diagnostic imaging procedure may provide the same or distinctive information as obtained by other procedures. Therefore, prudent choice of procedures(s) for a single diagnostic procedure, a complementary procedure in combination with other procedures(s), or a proper sequential order in multiple procedures will ensure maximum diagnostic accuracy, minimize the likelihood of adverse effect on patients, and promote efficiency by avoiding duplication or redundancy.

A.14 Surgical Interventions

Consideration of surgery should be within the context of expected functional outcome. 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 imaging and other diagnostic tests. A comprehensive assimilation of these factors must lead to a specific diagnosis with positive identification of pathologic condition(s). For surgery to be performed to treat pain, there must be clear correlation between the pain symptoms and objective

evidence of its cause. In all cases, shared decision making with the patient is advised. The patient should be given the opportunity to understand the pros and cons of surgery, potential for rehabilitation as an alternative where applicable, evidence-based outcomes, and specific surgical experience.

A.15 Pre-Authorization

All diagnostic imaging, testing procedures, non-surgical and surgical therapeutic procedures, and other therapeutics within the criteria of the Medical Treatment Guidelines and based on a correct application of the Medical Treatment Guidelines are considered authorized, with the exception of the procedures listed in section 324.3(1)(a) of Title 12 NYCRR. These are not included on the list of pre-authorized procedures. Providers who want to perform one of these procedures must request pre-authorization from the carrier before performing the procedure.

Second or subsequent procedures (the repeat performance of a surgical procedure due to failure of, or incomplete success from the same surgical procedure performed earlier, if the Medical Treatment Guidelines do not specifically address multiple procedures) also require pre-authorization.

A.16 Psychological/Psychiatric Evaluations

In select patients, mental health evaluations are essential to make, secure or confirm a diagnosis. Of course, the extent and duration of evaluations and/or interventions by mental health professionals may vary, particularly based on whether: the underlying clinical issue in the claim is inherently a mental health issue; or there is a mental health issue that is secondary or consequential to the medical injury or illness that is at issue in the claim in question; or there is a pre-existing, unrelated mental health issue that has been made worse by, or is impeding the recovery from (or both) the medical injury or illness that is at issue in the claim in question.

Tests of psychological function or psychometric testing, when indicated, can be a valuable component of the psychological evaluation in identifying associated psychological, personality and psychosocial issues. Although these instruments may suggest a diagnosis, neither screening nor psychometric tests are capable of making a diagnosis. The diagnosis should only be made after careful analysis of all available data, including from a thorough history and clinical interview.

A professional fluent in the primary language of the patient is strongly preferred. When such a provider is not available, services of a professional language interpreter must be provided.

Frequency: When assessing for a pre-existing, unrelated mental health issue that has been made worse by, or is impeding the recovery from (or both) a work-related, medical injury or illness, then a one-time visit for initial psychiatric/psychological encounter should be sufficient, as care would normally be continued by the prior treating provider. If psychometric testing is indicated by findings in the initial encounter, time for such testing should not exceed an additional three hours of professional time. For conditions in which a mental health issue is a central part of the initial claim, or in which there is a mental health issue that is secondary or consequential to the work-related, medical injury or illness, that is part of the claim in question, then more extensive diagnostic and therapeutic interventions may be

clinically indicated, and are discussed in detail in the Medical Treatment Guidelines for such mental health conditions.

A.17 Personality/Psychological/Psychosocial Intervention

Following psychosocial evaluation, when intervention is recommended, such intervention should be implemented as soon as possible. This can be used alone or in conjunction with other treatment modalities. For all psychological/psychiatric interventions, there must be an assessment and treatment plan with measurable behavioral goals, time frames and specific interventions planned**.**

- Time to produce effect: two to eight weeks.
- Optimum duration: six weeks to three months.
- Maximum duration: three to six months.
- Counseling is not intended to delay but rather to enhance functional recovery.

For PTSD Psychological Intervention:

- Optimum duration three to six months.
- Maximum duration: nine to twelve months.

For select patients, longer supervision and treatment may be required, and if further treatment is indicated, documentation of the nature of the psychological factors, as well as projecting a realistic functional prognosis, should be provided by the authorized treating practitioner every four weeks during the first six months of treatment. For treatment expected to last six to twelve months, such documentation should be provided every four to eight weeks. For long-term treatment beyond twelve months, such documentation should be provided every eight to twelve weeks. All parties should strive for ongoing and continuous communications, in order to facilitate seamless, continuous and uninterrupted treatment.

A.18 Functional Capacity Evaluation (FCE)

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

In most cases, the question of whether a patient can return to work can be answered without an FCE.

An FCE may be considered at time of MMI, following reasonable prior attempts to return to full duty throughout course of treatment, when the treating physician is unable to make a clear determination on work status on case closure. An FCE is not indicated early during a treatment regime for any reason including one to support a therapeutic plan.

When an FCE is being used to determine return to a specific job site, the treating physician is responsible for understanding and considering the job duties. FCEs cannot be used in isolation to determine work restrictions. The authorized treating physician must interpret the FCE in light of the individual patient's presentation and medical and personal perceptions. FCEs should not be used as the sole criteria to diagnose malingering.

A.19 Return To Work

For purposes of these guidelines, return to work is defined as any work or duty that the patient is able to perform safely. It may not be the patient's regular work. Ascertaining a return to work status is part of medical care, and should be included in the treatment and rehabilitation plan. It is normally addressed at every outpatient visit. A description of the patient's status and task limitations is part of any treatment plan and should provide the basis for restriction of work activities when warranted. Early return to work should be a prime goal in treating occupational injuries. The emphasis within these guidelines is to move patients along a continuum of care and return to work, since the prognosis of returning an injured worker to work drops progressively the longer the worker has been out of work.

A.20 Job Site Evaluation

The treating physician may communicate with the employer or employer's designee, either in person, by video conference, or by telephone, to obtain information regarding the individual or specific demands of the patient's pre-injury job. This may include a description of the exertional demands of the job, the need for repetitive activities, load lifting, static or awkward postures, environmental exposures, psychological stressors and other factors that would pose a barrier to re-entry, risk of re-injury or disrupt convalescence. When returning to work at the patient's previous job tasks or setting is not feasible, given the clinically determined restrictions on the patient's activities, inquiry should be made about modified duty work settings that align with, the patient's condition in view of proposed work activities/demands in modified duty jobs. It should be noted, that under certain circumstances, more than one job site evaluation may be indicated.

Ideally, the physician would gain the most information from an on-site inspection of the job settings and activities; but it is recognized that this may not be feasible in most cases. If job videos/CDs/DVDs are available from the employer, these can contribute valuable information, as can video conferences, conducted from the worksite and ideally workstation or work area.

Frequency: one or two contacts

- 1st contact: Patient is in a functional state where the patient can perform some work.
- 2nd contact: Patient has advanced to state where the patient is capable of enhanced functional demands in a work environment.

The physician shall document the conversation.

Other

A.21 Guideline Recommendations And Medical Evidence

The Workers' Compensation Board and its Medical Advisory Committee have not independently evaluated or vetted the scientific medical literature used in support of the guidelines but have relied on the methodology used by the developers of various guidelines utilized and referenced in these Guidelines.

A.22 Experimental/Investigational Treatment

Medical treatment that is experimental/investigational and not approved for any purpose, application or indication by the FDA is not permitted under these Guidelines.

A.23 Injured Workers As Patients

In these Guidelines, injured workers are referred to as patients recognizing that in certain circumstances there is no doctor-patient relationship.

A.24 Scope Of Practice

These Guidelines do not address scope of practice or change the scope of practice.

Neck Injury

Effective date will coincide with the launch of OnBoard: Limited Release

B. Introduction

B.1 History Taking and Physical Examination

History taking and physical examination establish the foundation/basis for and dictate subsequent stages of diagnostic and therapeutic procedures. When findings of clinical evaluations and those of other diagnostic procedures are not consistent with each other, the objective clinical findings should have greater weight. The medical records should reasonably document the following:

B.1.a History of Present Injury

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

B.1.a.i Mechanism of Injury

This includes details of symptom onset and progression. The mechanism of injury should include a detailed description of the incident and the position of the body before, during, and at the end of the incident. Inclusion of work body postures, frequency during the workday and lifting/push/pull requirements should be included in the absence of a known specific incident.

B.1.a.ii Location of pain, nature of symptoms, and alleviating/ exacerbating factors (e.g. sleep positions). Of particular importance is whether raising the arm over the head alleviates radicular-type symptoms. The history should include both the primary and secondary complaints (e.g., primary neck pain, secondary arm pain, headaches, and shoulder girdle complaints).

B.1.a.iii The use of an accepted pain assessment tool, (e.g. the Visual Analog Scale [VAS]) is highly recommended, especially during the first two weeks following injury, to assure that all work-related symptoms, including pain, are being addressed.

B.1.a.iv Presence and distribution of upper and/or lower extremity numbness, paresthesias, or weakness, especially if precipitated or worsened by coughing or sneezing.

B.1.a.v Alteration in bowel, bladder or sexual function.

B.1.a.vi Loss or impairment of fine motor skills and difficulty manipulating small objects.

B.1.a.vii Prior occupational and non-occupational injuries to the same area including specific prior treatment, history of specific prior motor vehicle accidents, chronic or recurrent symptoms, and any functional limitations. Review of any prior spinal imaging studies.

B.1.a.viii History of emotional and/or psychological reactions to the current injury/illness.

B.1.a.ix Ability to perform job duties and activities of daily living.

B.1.b Past History

B.1.b.i Comprehensive past medical and surgical history.

B.1.b.ii A review of systems should be conducted, the elements of which may include signs or symptoms related to the following systems: constitutional symptoms; eyes; ear, nose, mouth, and throat; cardiovascular; respiratory; gastrointestinal; genitourinary; musculoskeletal; integumentary/breast; neurological; psychiatric; endocrine; hematologic/lymphatic; allergic/immunologic. Based on the underlying condition being addressed, and clinical judgement, the breadth and focus of the review of systems can be tailored on a case by case basis.

B.1.b.iii Smoking history.

B.1.b.iv Vocational and recreational pursuits.

B.1.b.v History of depression, anxiety, or other psychiatric illness.

B.1.b.vi History of cervical injuries or history of injury to the shoulder, arm, forearm or wrist/hand.

B.1.b.v History of injury or disease effecting the brachial plexus or peripheral nerves of the upper extremity.

B.1.b.vi Difficulty walking, loss of balance.

B.1.c Physical Examination

Should include accepted tests and exam techniques applicable to the area being examined, including:

B.1.c.i Visual inspection, including posture.

B.1.c.ii Cervical range of motion, quality of motion, and presence of muscle spasm. Motion evaluation of specific joints may be indicated. Range of motion should not be evaluated in acute trauma cases until fracture and instability have been ruled out.

B.1.c.iii Examination of cervical spine including the atlanto-occipital articulation (upward and downward gaze).

B.1.c.iv Palpation of spinous processes, facets, and muscles noting myofascial tightness, tenderness, and trigger points.

B.1.c.v 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 two upper extremities may indicate chronic muscle wasting.

B.1.c.vi Deep tendon reflexes. Asymmetry 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 but are not limited to upper and/or lower extremity clonus, grasp reflex, Babinski response and Hoffman's sign.

B.1.d Relationship to Work

This includes a statement of the probability that the illness or injury is work-related. If further information is necessary to determine work-relatedness, the physician should clearly state what additional diagnostic studies or job information is required.

B.1.e 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:

B.1.e.i Sharp and light touch, deep pressure, temperature, and proprioceptive sensory function;

B.1.e.ii Strength testing;

B.1.e.iii Anal sphincter tone and/or perianal sensation;

B.1.e.iv Presence of pathological reflexes of the upper and lower extremities; or

B.1.e.v Evidence of an Incomplete Spinal Cord Injury Syndrome:

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.

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.

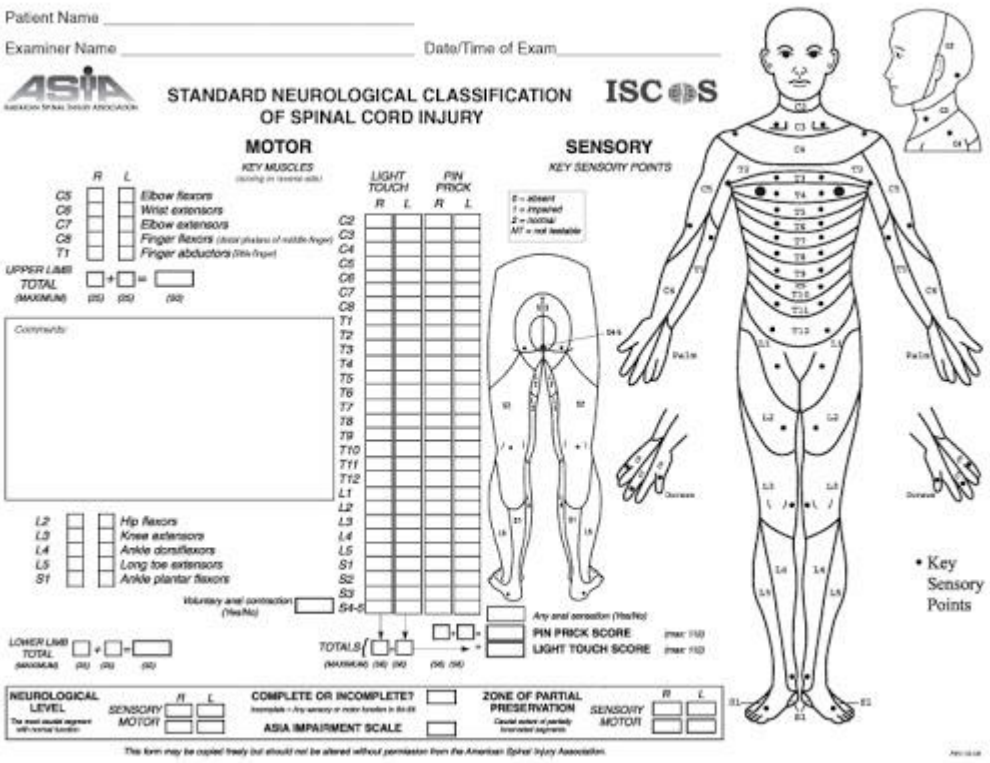
Central Cord Syndrome is characterized by sensory and motor disturbance of all limbs, often upper extremity more than lower, and loss of bowel and bladder function with preservation of perianal sensation. This is typically seen in older patients with spinal stenosis and a rigid spine following hyperextension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

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

B.1.e.vi Spinal cord lesions should 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 no motor function is preserved below the neurologic 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

An ASIA worksheet which details dermatomes and muscle testing required is below and is available from ASIA.



B.1.f 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. Soft tissue injuries may include cervical strain, myofascial syndromes, and somatic dysfunction. The Quebec Classification of Whiplash Associated Disorders can be used to categorize soft tissue and more severe cervical injuries:

B.1.f.i Grade I

Neck complaints of pain, stiffness, or tenderness only, without physical signs. Lesion not serious enough to cause muscle spasm. Includes whiplash injury, minor cervical sprains, or strains.

B.1.f.ii Grade II

Neck complaints with musculoskeletal signs, such as limited range of motion. Includes muscle spasm related to soft tissue injury, whiplash, cervical sprain, and cervicalgia with headaches, sprained cervical facet joints and ligaments.

B.1.f.iii Grade III

Neck complaints, such as limited range of motion, combined with neurologic signs. Includes whiplash, cervicobrachialgia, herniated disc, cervicalgia with headaches.

B.1.f.iv Grade IV

Neck complaints with fracture or dislocation.

B.1.g Red Flags

Certain findings, "red flags," raise suspicion of potentially serious and urgent medical conditions. Assessment (history and physical examination) should include evaluation for red flags. In the cervical spine these findings or indicators may include acute fractures, acute dislocations, infection, tumor, progressive neurological deficit, cauda equina syndrome, and extraspinal disorders. Further evaluation/consultation or urgent/emergency intervention may be indicated, and the *New York Neck Injury Medical Treatment Guidelines* incorporate changes in clinical management triggered by the presence of "red flags."

B.2 Imaging

Imaging of the cervical spine may be obtained as deemed clinically appropriate. Basic x-ray views are the anteroposterior (AP), lateral, right, and left obliques, swimmer's, and odontoid. Lateral flexion and extension views are utilized to evaluate instability. CT scans may be necessary to visualize C7 and odontoid in some patients. MRI or CT is indicated when spinal cord injury is suspected, in addition to other conditions which will be discussed below. The mechanism of injury and specific indications for the imaging should be listed on the request form to aid the radiologist and x-ray technician.

Alert, non-intoxicated patients, who have isolated cervical complaints without palpable midline cervical tenderness, neurologic findings, or other acute or distracting injuries elsewhere in the body, may not require imaging. The following suggested indications for radiographic studies include:

B.2.a History of significant trauma, especially high impact motor vehicle accident, rollover, ejection, bicycle, or recreational vehicle collision or fall from height greater than one meter.

B.2.b Age over 65 years.

B.2.c Suspicion of fracture, dislocation, instability, or neurologic deficit - Quebec Classification Grade III and IV.

B.2.d Unexplained or persistent cervical pain for at least 6 weeks or pain that is worse with rest.

B.2.e Localized pain, fever, constitutional symptoms, suspected tumor, history of cancer, or suspected systemic illness such as a

rheumatic/rheumatoid disorder or endocrinopathy.

B.3 Laboratory Tests

Laboratory tests are 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 other findings based on history and/or physical examination. Laboratory tests can provide useful diagnostic information. Tests include, but are not limited to:

B.3.a Complete blood count (CBC) with differential

Recommended - for patients with suspicion of infection, blood dyscrasias, and medication side effects.

B.3.b Erythrocyte sedimentation rate (ESR), rheumatoid factor (RF), anti-nuclear antigen (ANA), human leukocyte antigen (HLA), and C-reactive protein (CRP)

Recommended - To detect evidence of a rheumatologic, infection, or connective tissue disorder.

B.3.c Serum calcium, phosphorous, uric acid, alkaline phosphatase, and acid phosphatase

Recommended - In select patients with suspicion of metabolic bone disease.

B.3.d Liver and kidney function

Recommended - In select patients with prolonged anti-inflammatory use or other medications requiring monitoring.

B.3.e Serum Protein Electrophoresis

Recommended - in select patients, to evaluate for multiple myeloma, where imaging studies are inconclusive such as a negative bone scan in the presence of an acute fracture.

B.4 Follow-Up Diagnostic Imaging and Testing Procedures

As outlined in detail in General Principles section A-13, the selection of diagnostic imaging studies depends on the case-specific clinical presentation, as well as clinical judgment. In addition, there may be instances where repeat or alternate diagnostic imaging may be clinically indicated. Such instances include, but are not necessarily limited to when: a prior test is of poor quality and/or nondiagnostic; the clinical situation changes (e.g., new or worsening symptoms, preparing for surgery or therapeutic injections, etc.); it is necessary to monitor clinical progress (e.g. post-operatively) or deterioration over time.

Prudent choice of procedure(s) or a proper sequential order in multiple procedures will ensure maximum diagnostic accuracy, minimize adverse effect to patients and promote clinical efficiency. Repeat procedures result in an increase in cumulative radiation dose and associated risks.

Diagnostic imaging procedures have varying degrees of sensitivity and specificity for any diagnosis. Clinical history, physical examination and clinical judgment should be the basis for selection and interpretation of imaging studies.

Generally, plain X-rays are a useful starting point, but they are not always sufficient. Magnetic resonance imaging (MRI), myelography, or computed axial tomography (CT) scanning following myelography may provide useful information for many spinal disorders. Regarding CT examinations, it must be recognized that repeat procedures result in an increase in cumulative radiation dose and associated risks. In certain circumstances as stated above, repeat or alternate imaging may be warranted. Usually, selection of one procedure over others depends upon multiple factors.

After initial imaging is performed, as may be indicated by clinical presentation, history of significant trauma or other clinical “red flags” that raise suspicions for serious underlying conditions, in the absence of a significant neurologic deficit/abnormality, myelopathy or progressive neurological changes, imaging usually is not clinically indicated until conservative therapy has been tried and failed. A minimum of four weeks, but as long as six to eight weeks of treatment are usually an adequate period of time before an imaging procedure is in order, but the clinician should use judgment in this regard. When the findings of the diagnostic imaging and testing procedures are not consistent with the clinical examination, objective clinical findings should be given greater weight. There is good evidence that in the over-40, asymptomatic population, the prevalence of disc degeneration is greater than 50%. Disc degeneration, seen as loss of signal intensity on MRI, may be due to age-related changes causing biochemical changes and structural changes separate and distinct from traumatic injury and may not have pathological significance. Disc bulging and posterior disc protrusion, while not rare, is more commonly symptomatic in the cervical spine than in the lumbar spine due to the smaller cervical spinal canal. Mild reduction in the cross-sectional area of the spinal cord may be seen without myelopathy in patients older than 40, therefore, clinical correlation is required.

When indicated, the following studies can be utilized for further evaluation of neck injuries, based upon the mechanism of injury, symptoms, and patient history. The studies below are not listed in order of preference, clinical indication, or clinical utility, as that may vary based on the clinical details of any given case.

C. Diagnostic Studies

C.1 Imaging Studies

C.1.a X-Ray Imaging

Recommended - X-Ray of the cervical spine as clinically indicated for evaluation of the bony anatomy of the cervical spine which may include oblique and open mouth views for foramen and dens respectively.

Recommended - flexion and extension views as clinically indicated to evaluate spinal instability and the dens position with reference to the anterior aspect of the C1 ring vertebra.

Note: The mechanism of injury and specific indications for the imaging should be listed in the request to aid the radiologist and x-ray technician.

C.1.b Magnetic Resonance Imaging (MRI)

Recommended - in select patients.

Indications: In suspected nerve root compression, in myelopathy to evaluate the spinal cord and/or differentiate or rule out masses, infections such as epidural abscesses or disc space infection, bone marrow involvement by metastatic disease, and/or suspected disc herniation or cord compression/contusion following severe neck injury.

MRI should be performed immediately if there is a question of infection or metastatic disease with cord compression. MRI is contraindicated in patients with certain implanted devices.

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

Frequency: Generally once, however inadequate resolution on the first scan may require a second MRI using a different technique. A subsequent diagnostic MRI may be a repeat of the same procedure when the rehabilitation physician, radiologist or surgeon or other trained, qualified physician documents that the study was of inadequate quality to make a diagnosis. All questions in this regard should be discussed with the MRI center and/or radiologist.

Note: Ferrous material/metallic objects present in the tissues may be a contraindication for the performance of an MRI. There are many instances in which a metallic object may be dislodged by the MRI's magnetic field, causing significant harm, or even death.

C.1.c MRI With and Without Contrast

Recommended- for patients who have had prior cervical surgery, concerns for malignancy, or infection may require the use of Gadolinium enhancement for the MRI study. This request should take into account any underlying medical conditions that would be a contraindication to an enhanced MRI.

C.1.d Specialized MRI Scans

C.1.d.i MRI with 3-dimensional reconstruction

Recommended - in select patients
Indications: 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.

C.1.d.ii Dynamic-kinetic MRI of the spine

Not Recommended

C.1.e Computed Axial Tomography (CT)

Recommended - in select patients.

Indications: Computed Axial Tomography (CT) provides excellent visualization of bone and is used to further evaluate bony masses and suspected fractures not clearly identified on radiographic evaluation. It may sometimes be done as a complement to MRI scanning to better delineate bony osteophyte formation in the neural foramen. 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. Plain CT scanning can be poor for the C6-7 or C7- T1 levels because of shoulder artifact When ferrous/ metallic materials are present in the tissues, CT should be ordered rather than an MRI. CT examinations, it should be remembered, deliver a considerable radiation dose and carry with them associated radiation-related risks.

CT scan may be utilized to help determine the presence of cervical disc herniation and/or stenosis in patients unable to tolerate MRI. CT myelography can better delineate these conditions.

C.1.f Myelography

Myelography is the injection of radiopaque material into the spinal subarachnoid space, with x-rays or CT scan then performed to define anatomy.

Recommended - in select patients

Indications: 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. This testing may be indicated in select patients for whom the clinical benefits outweigh the risks, and for whom, based on case-specific circumstances, MRI (or otherwise preferred alternative testing) is either: unavailable; non-diagnostic; not clinically indicated; or clinically contraindicated.

Note: Potential complications of this more invasive technique

include pain, infection, and allergic reactions.

C.1.g CT Myelography

CT Myelogram provides more detailed information about relationships between neural elements and surrounding anatomy.

Recommended - in select patients with multiple prior operations or tumorous conditions only for pre-surgical testing.

Recommended - myelography, including CT myelography, is recommended only in uncommon patient specific situations (e.g., implanted metal that precludes MRI, equivocal findings of disc herniation on MRI, spinal stenosis, and/or a post-surgical situation that requires myelography in patients who are unable to tolerate an MRI).

Not Recommended - myelography (as well as CT myelography and MRI myelography) as the first diagnostic study for the diagnosis of cervical root compromise.

Indications: This testing may be indicated in select patients for whom the clinical benefits outweigh the risks, and for whom, based on case-specific circumstances, MRI (or otherwise preferred alternative testing) is either: unavailable; non-diagnostic; not clinically indicated; or clinically contraindicated.

Note: Potential complications of this more invasive technique include pain, infection, and allergic reactions.

C.1.h Bone Scan (Radioisotope Bone Scanning)

99M Technetium diphosphonate uptake reflects osteoblastic activity and may be useful in diagnosing metastatic/primary bone tumors, stress fractures, osteomyelitis, and inflammatory lesions.

Recommended - to evaluate for neoplasia, occult fracture or infection.

Indications: Bone scanning is a good diagnostic test for specific situations which involve a minority of patients and may be useful in diagnosing neoplasia, suspected metastases, infection (e.g. osteomyelitis), inflammatory arthropathies and occult fractures.

C.1.i Other Radioisotope Scanning

Indium and gallium scans

Recommended - in select patients to localize tumor, infection and abscess.

C.1.j Dynamic (Digital) Fluoroscopy

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.

Recommended - Dynamic Fluoroscopy may be used in designated trauma centers to evaluate the cervical spine. If performed, full visualization of the cervical spine (C1 - T1) is required.

C.2 Other Tests

C.2.a Electrodiagnostic Studies (EDX)

EDX studies include needle EMG (Electromyogram), peripheral nerve conduction velocity studies (NCV) and motor and sensory evoked potentials.

It is recommended and preferred that EDX in the out-patient setting be performed and interpreted by physicians board-certified in Neurology or Physical Medicine and Rehabilitation.

In general, electrodiagnostic studies are complementary to imaging procedures such as CT, MRI, and/or myelography. Whereas X-ray, CT and MRI reflect structural changes, electrodiagnostic studies reflect neurologic functional status.

Recommended - needle EMG to substantiate the diagnosis of radiculopathy or spinal stenosis in patients with neck pain and/or upper extremity complaints. Needle EMG can also help determine if radiculopathy is acute or chronic.

Recommended - NCV to help rule out other potential causes for the symptoms (co- morbidity or alternate diagnosis involving peripheral nerves) and to confirm radiculopathy.

C.2.a.i Portable Automated Electrodiagnostic Device (also known as Surface EMG)

Not Recommended - surface EMG for diagnostic evaluation of neck pain or neck injuries

C.2.a.ii Somatosensory Evoked Potential (SSEP)

Recommended - in select patients for the evaluation of myelopathy and is commonly used intra- operatively.

Not Recommended - to identify radiculopathy.

Indications: if significant radiating arm symptoms are present for greater than four to six weeks after the onset of injury and no

obvious level of nerve root dysfunction is evident on examination, electrodiagnostic studies may be indicated. Electrodiagnostic studies may also be useful to determine the extent of injury in patients with an established level of injury.

C.2.a.iii Current Perception Threshold Evaluation (CPT)

Not Recommended - as a diagnostic tool.

C.2.b Injections – Diagnostic

Atlanto-axial/atlanto-occipital.

Not Recommended

C.2.c Provocative Discography

Not Recommended

C.2.d Thermography

Not Recommended

D. Therapeutic Procedures: Non-Operative

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

First, patients undergoing therapeutic procedure(s) should be released or returned to modified or restricted duty during their rehabilitation at the earliest appropriate time.

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

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

Lastly, for those patients who fail to make expected progress 6-12 weeks after an injury and whose subjective symptoms do not correlate with objective signs and tests, reexamination in order to confirm the accuracy of the diagnosis should be made. Formal psychological or psychosocial evaluation may be considered.

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.

D.1 Acupuncture

Recommended - in select patients as an adjunct to physical rehabilitation and/or surgical intervention to hasten the return of functional activity.

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

Frequency: Typically, one to three times per week with three to six treatments needed to produce effect and a maximum of ten treatments as clinically indicated.

Note: Acupuncture treatments may extend longer if objective functional gains can be documented or when symptomatic benefits facilitate progression in the patient's treatment program. Treatment beyond ten treatments must be documented with respect to need and ability to facilitate positive symptomatic or functional gains.

D.2 Biofeedback

Biofeedback is often used in conjunction with other treatment modalities.

Recommended - for select patients with non-acute neck pain, as a component of an interdisciplinary approach.

- Time to Produce Effect: 3 to 4 sessions.
- Frequency: 1 to 2 times per week.
- Optimum Duration: 5 to 6 sessions.
- Maximum Duration: 10 to 12 sessions. Treatment beyond 12 sessions must be documented with respect to need, expectation, and ability to facilitate positive functional gains.

Not Recommended - acute neck pain or acute injury.

Please consult the *New York Non-Acute Pain Medical Treatment Guidelines* for further recommendations.

D.3 Injections: Therapeutic

D.3.a Therapeutic Spinal Injections

Therapeutic spinal injections may be used after initial conservative treatments, such as physical and occupational therapy, medication, manual therapy, exercise, or acupuncture have been undertaken.

D.3.a.i Therapeutic injections should be used only after imaging studies and diagnostic injections have established pathology.

D.3.a.ii Injections are invasive procedures that can cause catastrophic complications; thus clinical indications and contraindications should

be closely adhered to.

D.3.a.iii The purpose of spinal injections is to facilitate active therapy by providing short-term relief through reduction of pain and inflammation.

D.3.a.iv All patients should continue appropriate exercise with functionally directed rehabilitation.

D.3.a.v Active treatment, which patients should have had prior to injections, will frequently require a repeat of the sessions previously ordered.

D.3.a.vi Injections, by themselves, are not likely to provide long-term relief. Rather, active rehabilitation with modified work achieves long-term relief by increasing active range of motion, strength, and stability.

D.3.a.vii Injections should not be repeated if the first injection does not provide:

D.3.a.vii.a Improvement in function

D.3.a.vii.b Temporary and sustained pain relief as measured by accepted pain scales, i.e., 50% pain reduction on Visual Analog Scale

and/or

D.3.a.vii.c Reduction in the use of prescribed analgesic medication.

D.3.a.vii.d Medical management should be continued or adjusted based upon patient assessment and response.

Special Considerations:

- For all injections (excluding trigger point and occipital nerve blocks) multi-planar fluoroscopy during procedures is required to document technique and needle placement.
- All injections (excluding trigger point) must be performed by a physician experienced in the procedure. Trigger point injections may be performed by a physician or a Nurse Practitioner/Physician Assistant experienced in the procedure.
- Permanent images are required to document needle placement.
- The subspecialty disciplines of the physicians performing injections may be varied, including, but not limited to: anesthesiology, radiology, surgery, or physiatry.

- The practitioner should have completed fellowship training in an appropriate medical specialty (neurosurgery, orthopedic surgery, physiatry, pain management etc.) with interventional training. The practitioner must also be knowledgeable in radiation safety for studies performed under fluoroscopy.

Complications:
General complications of spinal injections may include:

- Transient neurapraxia
- Local pain
- Nerve injury
- Infection
- Headache
- Vasovagal effects
- Epidural hematoma, permanent neurologic damage, dural perforation and CSF leakage, and/or spinal meningeal abscess may also occur.
- More serious complications are rare but can include spinal cord damage, quadriplegia, permanent ataxia, and death.
- With steroid injections, there may be a dose-dependent suppression of the hypothalamic-pituitary-adrenal axis lasting between one and three months.
- With steroid injections, there may be a transient rise in glucose levels, especially in diabetics.

Contraindications:
Absolute contraindications to therapeutic injections include:

- bacterial infection – systemic or localized to region of injection
- bleeding diatheses
- hematological conditions
- possible pregnancy

Relative contraindications to diagnostic injections may include:

- allergy to contrast
- poorly controlled Diabetes Mellitus

- hypertension

Drugs affecting coagulation, such as aspirin, NSAIDs, anti-platelets or anticoagulants are often restricted.

- Decisions regarding anticoagulation should be made in consultation between the provider performing the injection and the prescribing physician and other specialists as indicated, in the context of the patient's specific underlying medical condition.

D.3.b Cervical Epidural / Interlaminar Steroid Injections (ESI)

Cervical ESI are injections of corticosteroid into the epidural space.

The purpose of ESI is to reduce pain and inflammation, restoring range of motion and thereby facilitating progress in more active programs.

As with all treatments, it is important to ensure that patients have realistic expectations regarding treatment outcomes.

Diabetics who are candidates for ESI should be counseled that a blood glucose increase may be apparent post- intervention, but the increase is generally transient.

Needle Placement: Cervical ESIs must be fluoroscopically guided to verify needle placement. Permanent images are required to document needle placement.

Contrast epidurograms will allow one to verify the flow of medication into the epidural space. One epidurogram is recommended per series of ESI injections as clinically indicated.

Recommended - in patients with symptoms of cervical radicular pain syndromes.

Not Recommended - for cervical axial pain or non-radicular pain syndromes.

Note: Use of anesthetics is generally not recommended for cervical ESI.

Frequency:

- Three injections may be done in one 12-month period (per spinal region) depending on patient response (improved function and pain reduction). No more than one level per treatment session.

- It is recommended that each injection be scheduled separately and effects of each injection be evaluated, depending upon patient response (improved function and pain reduction) rather than scheduling a "Series of Three."

- If the first injection does not provide a response with temporary

and sustained pain relief (at least 2 weeks) substantiated by accepted pain scales (i.e., 50% pain reduction as measured by tools such as VAS) and improvement in function, repeat injections are not recommended.

- A positive result (functional improvement) should include measurable improvement in physical activity goals, and a return to baseline function or to work duties.

Patients should be reassessed after each injection for:

- Improvement in function
- Temporary and sustained pain relief as measured by accepted pain scales, i.e., 50% pain reduction on Visual Analog Scale

  and/or

- Reduction in the use of prescribed analgesic medication.

Medical management should be continued or adjusted based upon patient assessment and response.

Discontinuation:

- Resolution of symptoms; decrease in symptoms to a tolerable level or absence of response.
- Epidural glucocorticosteroid injections are not recommended for acute or non-acute neck pain in the absence of significant radicular symptoms.
- They are not recommended as treatment for any non- acute axial neck pain without a radicular component.

D.3.c Cervical Transforaminal Injections

Not Recommended

D.3.d Cervical Diagnostic and Therapeutic Medial Nerve Branch Blocks / Facet (Zygapophyseal) Joint Injections

Facet joint (injection into injections (blocking medial nerve innervation of the facet joint) the intra-articular facet joint space) or medial branch block

Recommended - for acute neck pain when there is continuing axial neck pain after an injury (for example, status post whiplash injury) that has not responded to conservative management.

For acute pain, these injections involve a combination of an anesthetic and a steroid.

Frequency: Up to three injections total for acute pain per 12-month period as clinically indicated.

Not Recommended - diagnostic medial branch block injections (anesthetic only) or diagnostic facet joint injections (anesthetic only) for acute neck pain.

Recommended - medial branch block injections for select patients with non-acute neck pain in order to determine whether specific interventions targeting the facet joint (by blocking medial nerve innervation to the facet joint) should be performed.

D.3.e Medial Branch Block Injections

Recommended - for patients with pain suspected to be largely facet in origin based on exam findings (i.e.: non-radicular pain aggravated by extension-facet loading)

or

Recommended - for patients who have facet findings with referred pain to the axial/cervical thoracic or occipital area

and

- Documented evidence (i.e., imaging study) of facet disease (facet arthropathy/hypertrophy at the targeted level(s)

and

- Who have completed a documented course of conservative management as defined in the Neck Injury Medical Treatment Guideline, including but not limited to medication, modalities, and active exercises.

In these patients, medial branch block injections may aid in identifying pain generators, therapeutically reduce pain and may be useful in facilitating progress in a rehabilitation program.

Patients should be reassessed after each injection for a documented 50% improvement in pain as measured by accepted pain scales and evidence of functional improvement for at least four to six weeks.

These injections must be fluoroscopically guided.

Description:

Cervical medial nerve branch blocks may consist of a diagnostic and/or a therapeutic component.

- The diagnostic component consists of an anesthetic and the therapeutic component, a corticosteroid.

- For non-acute pain, the diagnostic component (anesthetic only) may be used individually or may be combined with a steroid into a single diagnostic/therapeutic injection.

- A medial nerve branch block is indicated for the diagnosis of pain that is suspected of arising from the facet joint.

- Facet joint injections are not to be used as diagnostic tools for the purpose of determining the need for radiofrequency ablation.

- A history and physical examination should document the rationale for the suspected diagnosis.

Positive Diagnostic Medial Nerve Branch Block Response

A positive response to the diagnostic component of a medial nerve branch block consists of an initial temporary improvement, which may be as short as one to four hours, and includes a reduction in pain (50% decrease as measured by accepted pain scales), and improvement in function for the duration of the local anesthetic.

D.3.f Repeat Medial Branch Block Injections

Recommended - if a patient has a positive response to a diagnostic medial branch block injection (whether or not steroids are used), a repeat medial branch block injection should be performed to confirm the diagnosis.

This repeat comparative medial branch block injection should be performed on a different date to confirm the level of involvement.

If there is a positive response to the repeat diagnostic medial branch block injection, the patient should be evaluated to determine the need for more definitive treatment such as radiofrequency ablation.

When administering a diagnostic injection, consideration should be given to combining the anesthetic agent with steroid to allow for the potential of extended pain relief.

If there is not a positive response to the first diagnostic injection, the diagnosis should be re-evaluated.

If the first injection does not provide a positive response, repeat diagnostic injections are not recommended.

Positive Therapeutic Response (either Medial Branch Block Injection or Facet Joint Injection)

Therapeutically, steroid may be added to provide longer benefit. The goal of the prolonged therapeutic benefit is to decrease pain and increase function with the ability to participate in an active rehabilitation program (which the patient was unable to do prior to the injection).

- Patients should be reassessed after each therapeutic injection for a documented 50% improvement in pain as measured by accepted pain scales and evidence of functional improvement.

- A positive result (functional improvement) should include measurable improvement in physical activity goals including return to baseline or work activities.

- Pain should be measured by accepted pain scales, pre-procedure, immediately post-procedure and at identified intervals after the procedure.

- If the first therapeutic injection does not provide sustained pain relief substantiated by accepted pain scales (i.e., 50% documented pain reduction as measured by accepted pain tools) and improvement in function for at least 4-to-6 weeks, repeat steroid injections are not recommended.

- A positive response to a therapeutic injection is not determinative of the need for radiofrequency ablation.

Time to produce effect: up to 30 minutes for local anesthetic; corticosteroid up to 72 hours.

Frequency - up to 3 injections for each applicable joint may be done in one 12-month period, not to exceed three joint levels (four medial branch nerves) per session, depending upon patient's documented response (i.e., improved functional gain and pain reduction). Maximum 3 sessions/year.

Note: The above referenced time frames for consideration of various injections may vary based on patient specific clinical considerations.

D.3.g Intradiscal Steroid Therapy

Not Recommended

D.3.h Occipital Nerve Block

Occipital nerve blocks are injections used both diagnostically and therapeutically in the treatment of occipital neuralgia. The greater occipital nerve is the target.

Recommended - peripheral block of the greater occipital nerve may be appropriate as initial treatment of occipital neuralgia.
Frequency/ Duration – One to three injections contingent on positive response. Up to three injections if progressive symptomatic and functional improvement can be documented.

Complications:

- Bleeding, infection, neural injury. Post procedural ataxia is common and usually lasts 30 minutes post procedure. Because the occipital artery runs with the occipital nerve, inadvertent intravascular injection is a risk of this procedure and may lead to systemic toxicity and/or seizures.

Note: Time to Produce Effect: Approximately 30 minutes for local anesthetic; 48 to 72 hours for corticosteroid.

D.3.i Trigger Point Injections and Dry Needling Treatment

Myofascial trigger points are localized hyperirritable palpable nodules in extremely sensitive bands of taut skeletal muscle fibers. These nodules are painful on compression and give rise to local pain and pain referred to distant structures.

- Trigger point treatment consists only of dry needling or injection of local anesthetic into myofascial trigger points.

- Trigger point injection is not the equivalent of acupuncture. Please refer to the acupuncture section in each Medical Treatment Guideline.

- There is no evidence that injection of medications improves the results of trigger point injections. Needling alone may account for some of the therapeutic response.

- As with all treatments, it is important to ensure that patients have realistic expectations regarding treatment outcomes.

Recommended - Trigger point injections may be reasonable secondary or tertiary options for non-acute pain that is not resolving with more conservative means (e.g., NSAIDs, progressive aerobic exercises, other exercises) within a 6-week time frame.

Not Recommended - Trigger point injections for treatment of acute neck pain.

Indications:

- Trigger point injections should be utilized primarily for facilitating functional progress.

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

- The use of therapeutic injections without participation in an active therapy program or in the context of maintaining employment is not recommended.

- Patients should be reassessed two weeks after each injection for:

    - Improvement in function

    - Temporary and sustained pain relief as measured by accepted pain scales, i.e., 50% pain reduction on Visual Analog Scale

    and/or

    - Reduction in the use of prescribed analgesic medication.

- Medical management should be continued or adjusted based upon patient assessment and response.

- Functional improvement should last for 3 months.

- A positive result (functional improvement) should include measurable improvement in physical activity goals, and a return to baseline function or to work duties.

- The use of ultrasound or other imaging studies for trigger point injections is not recommended.

Frequency:

- Not more than four injections per session, not to exceed four sessions per 12-month period.

- If there is a partial demonstrated improvement after the first set of injections, a second set may be reasonable.

- It is recommended to allow at least three to four weeks between these injections.

- If there are no subjective and objective improvements at that point, further injections are not recommended.

- Repeated injections should be linked to subjective and objective improvement.

- If results are not satisfactory after first set of injections, a second set is reasonable. If there are not subjective *and* objective improvements at

that point, further injections are not recommended.

- *Indications for Discontinuation* – Resolution, intolerance, or completing two sets of injections without materially affecting the condition.

D.3.j Prolotherapy (Sclerotherapy)

Not Recommended

D.3.k Platelet Rich Plasma (PRP)

Not Recommended

D.3.l Epiduroscopy and Epidural Lysis of Adhesions

Not Recommended – in the cervical spine secondary to the potential for dural puncture, hematoma, and spinal cord injury.

D.4 Radiofrequency Ablation, Neurotomy, Facet Rhizotomy

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

Radiofrequency medial branch neurotomy is recommended as the procedure of choice over alcohol, phenol, other injectable agents, or cryoablation.

Fluoroscopic guidance is required for precise positioning of the probe. Permanent images should be recorded to document appropriate placement of the device.

Recommended - for patients with proven facet joint pain in whom two diagnostic medial nerve branch blocks have been therapeutically successful, the use of radiofrequency ablation/neurotomy/facet rhizotomy may be indicated.

Note: This procedure is not recommended for involvement of more than three facet joints (four medial branch nerves).

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, correlated with functional improvement.

The patient should also identify activities of daily living (which may include measurements of range of motion) that are impeded by their pain. The provider should observe and document functional improvement in the identified activities in the clinical setting.

D.4.a Post-Procedure Therapy

Recommended - implementation of a gentle reconditioning program within the first post-procedure week is recommended, barring complications.

Recommended - instruction and participation in a long-term home-based program of range of motion, cervical, scapular, and thoracic strengthening, postural or neuromuscular re-education, endurance, and stability exercises should be accomplished.

Frequency: four to ten visits post-procedure.

D.4.b Repeat radiofrequency neurotomy (or additional level radiofrequency neurotomies)

Recommended - in select patients who have recurrent pain after 6 to nine months of relief from prior procedure.

Note: Before a repeat radiofrequency neurotomy is performed, a confirmatory medial branch injection may be performed if the patient's pain pattern presents differently than in the initial evaluation.

Frequency - Twice per year as indicated by improvement in pain and function.

D.5 Medication

For most patients, ibuprofen, naproxen, or other older generation NSAIDs are recommended as first-line medications. Acetaminophen (or the analog paracetamol) may be a reasonable alternative to NSAIDs for patients who are not candidates for NSAIDs, although most evidence suggests acetaminophen is modestly less effective. There is evidence that NSAIDs are as effective for relief of pain as opioids (including tramadol) and less impairing.

D.5.a Non-Steroidal Anti-inflammatory Drugs (NSAIDs) for Treatment of Acute, Subacute, or Chronic Neck Pain

Recommended - for treatment of acute, subacute, or chronic Neck pain

Indications: For acute, subacute, or chronic neck pain, NSAIDs are recommended for treatment. Over-the-counter (OTC) agents may suffice and should be tried first.

Frequency/Duration: As needed use may be reasonable for many patients.

Indications for Discontinuation: Resolution of symptoms, lack of efficacy, or development of adverse effects, that necessitate discontinuation.

D.5.b NSAIDs for Patients at High Risk of Gastrointestinal Bleeding

Recommended – for concominent use of cytoprotective classes of drugs: misoprostol, sucralfate, histamine Type 2 receptor blockers, and proton pump inhibitors for patients at high risk of gastrointestinal bleeding.

Indications: For patients with a high-risk factor profile who also have indications for NSAIDs, cytoprotective medications should be considered, particularly if longer term treatment is contemplated. At-risk patients include those with a history of prior gastrointestinal bleeding, elderly, diabetics, and cigarette smokers.

Frequency/Dose/Duration: Proton pump inhibitors, misoprostol, sucralfate, H2 blockers recommended. Dose and frequency per manufacturer. There is not generally believed to be substantial differences in efficacy for prevention of gastrointestinal bleeding.

Indications for Discontinuation: Intolerance, development of adverse effects, or discontinuation of NSAID.

D.5.c NSAIDs for Patients at Risk for Cardiovascular Adverse Effects

Patients with known cardiovascular disease or multiple risk factors for cardiovascular disease should have the risks and benefits of NSAID therapy for pain discussed.

Recommended - Acetaminophen or aspirin as the first-line therapy appear to be the safest regarding cardiovascular adverse effects.

Recommended - If needed, NSAIDs that are non-selective are preferred over COX-2 specific drugs. In patients receiving low-dose aspirin for primary or secondary cardiovascular disease prevention, to minimize the potential for the NSAID to counteract the beneficial effects of aspirin, the NSAID should be taken at least 30 minutes after or eight hours before the daily aspirin.

D.5.d Acetaminophen for Treatment of Neck Pain

Recommended - for treatment of neck pain, particularly in patients with contraindications for NSAIDs.

Indications: All patients with neck pain, including acute, subacute, chronic, and post-operative.

Dose/Frequency: Per manufacturer's recommendations; may be utilized on an as-needed basis. There is evidence of hepatic toxicity when exceeding four gm/day.

Indications for Discontinuation: Resolution of pain, adverse effects or intolerance.

D.5.e Topical Medications

Recommended – In select patients for treatment of pain associated with acute, subacute, or chronic neck pain, including topical creams, ointments, and lidocaine patches

Rationale for Recommendation: **TOPICAL DRUG DELIVERY** (e.g., capsaicin, topical lidocaine, topical NSAIDs and topical salicylates and

nonsalicylates) may be an acceptable form of treatment in selected patients. A topical agent should be prescribed with strict instructions for application and maximum number of applications per day to obtain the desired benefit and avoid potential toxicity. For most patients, the effects of long-term use are unknown and thus may be better used episodically. These agents may be used in those patients who prefer topical treatments over oral medications. Localized skin reactions may occur, depending on the medication agent used. Prescribers should consider that topical medication can result in toxic blood levels.

Capsaicin offers a safe and effective alternative to systemic NSAIDs, although its use is limited by local stinging or burning sensation that typically disappears with regular use. Patients should be advised to apply the cream on the affected area with a plastic glove or cotton applicator to avoid inadvertent contact with eyes and mucous membranes. Long-term use of capsaicin is not recommended.

Topical Lidocaine is only indicated when there is documentation of a diagnosis of neuropathic pain. In this instance, a trial for a period of not greater than four weeks can be considered, with the need for documentation of functional gains as criteria for additional use.

Topical NSAIDs (e.g. diclofenac gel) may achieve tissue levels that are potentially therapeutic. Overall the low level of systemic absorption can be advantageous, allowing the topical use of these medications when systemic administration is relatively contraindicated (such as patients with hypertension, cardiac failure, peptic ulcer disease or renal insufficiency).

Topical Salicylates or Nonsalicylates (e.g. methyl salicylate) overall do not appear to be more effective than topical NSAIDs. May be used for a short-term course especially in patients with chronic conditions in whom systemic medication is relatively contraindicated or as an adjuvant to systemic medication.

D.5.f Opioids

Not Recommended – for acute, subacute, or chronic neck pain.

Recommended – for limited use (not more than seven days) for post-operative pain management as adjunctive therapy to more effective treatments.

Indications: For post-operative pain management, a brief prescription of opioids as adjuncts to more efficacious treatments (especially NSAIDs, acetaminophen) is often required, especially nocturnally.

Frequency/Duration: Prescribed as needed throughout the day, then later only at night, before weaning off completely.

Rationale for Recommendation: Some patients have insufficient pain relief with NSAIDs, thus judicious use of opioids may be helpful, particularly for

nocturnal use. Opioids are recommended for brief, select use in post-operative patients with primary use at night to achieve sleep post-operatively.

D.5.g Anti-Depressants

D.5.g.i Tricyclic anti-depressants (TCAs)

Recommended - for non-acute neck pain that is not fully treated with NSAIDs and an exercise program. This intervention may be helpful where there is nocturnal sleep disruption and mild dysthymia.

- *Frequency and Duration*: Generally prescribed at a very low dose at night and gradually increased (e.g., amitriptyline 25 mg at bedtime, increase by 25 mg each week) until a sub-maximal or maximal dose is achieved, sufficient effects are achieved, or adverse effects occur. Most practitioners use lower doses (e.g., amitriptyline 25-75 mg/day to avoid the adverse effects and necessity of blood level monitoring), as there is no evidence of increased pain relief at higher doses. Imipramine is less sedating, thus if there is carryover daytime sedation, this may be a better option.

- *Discontinuation*: Resolution of the pain, intolerance, or development of adverse effects.

There is limited evidence that tricyclic anti-depressants (TCAs) result in modest reductions in pain ratings in the treatment of radicular pain compared with placebo.

D.5.g.ii Selective Serotonin Reuptake Inhibitors (e.g., paroxetine, as well as bupropion and trazodone)

Not Recommended - for treatment of non-acute neck pain. (They may be nevertheless recommended for treatment of depression as noted previously.)

Note: There is strong evidence that treatment with these medications is not of benefit, thus their use is not recommended for the management of non-acute neck pain without depression.

There is no quality evidence supporting the efficacy of anti-depressants in the treatment of acute neck pain. Absent other indicators of a need for such treatment, this intervention is not recommended for the management of acute neck pain.

D.5.h Anti-Seizure Drugs

D.5.h.i Topiramate

Recommended - in select patients for limited with non-acute neck pain, where there has been failure of multiple other

modalities including trials of different NSAIDs, aerobic exercise, specific stretching exercise, strengthening exercise, tricyclic anti-depressants, distractants, and manipulation.

- *Frequency/Dose:* This medication is initiated by gradually increasing the dose. Patients should be carefully monitored for the development of adverse events.

- *Discontinuation*: Resolution or development of adverse effects. Careful monitoring of employed patients is indicated due in part to elevated risks for central nervous system (CNS) sedating adverse effects.

Not Recommended - neuropathic pain, including peripheral neuropathy.

D.5.h.ii Carbamazepine

Recommended - as a potential adjunct for non-acute radicular or neuropathic pain after attempting other treatments (e.g., other medications, aerobic exercise, other exercise, manipulation). While there is not quality evidence for treatment of non-acute radicular neck pain, this may be tried if other medications have failed. Oxcarbazepine and lamotrigine may be useful agents to try if the results from carbamazepine are insufficient pain relief.

- *Frequency/Duration:* Frequency and dosing are based on the medication prescribed.

- *Discontinuation:* Resolution of neck pain, lack of efficacy, or development of side effects that necessitate discontinuation. Careful monitoring of employed patients is indicated due to elevated risks for CNS sedating adverse effects.

D.5.h.iii Gabapentin and Pregabalin

Recommended - for peri-operative management of pain to reduce need for opioids, particularly in those with side effects from opioids.

Recommended - in select patients for the treatment of severe neurogenic claudication from spinal stenosis or chronic radicular pain syndromes with limited walking distance.

Not Recommended - not recommended for axial or non-neuropathic pain.

Discontinuation: Resolution or intolerance. Careful monitoring of employed patients is indicated due in part to elevated risks for CNS-sedating adverse effects.

D.5.i Compound Medications

Not Recommended - Topical, oral and/or systemic compound medications

D.5.j Skeletal Muscle Relaxants

D.5.j.i **Recommended** – Muscle relaxants (not including carisoprodol) are recommended as a second-line treatment for selected cases of moderate to severe acute neck pain.

Note- For most cases, these agents are not recommended as other medication, progressive walking, and other exercises will be sufficient to control the symptoms. Generally, it is recommended that these agents be prescribed nocturnally initially and not during workdays or when patients plan to operate motor vehicles. Caution should be used in prescribing skeletal muscle relaxants for those with a history of depression, personality disorder, substance addiction and/or abuse, including alcohol or tobacco. If a muscle relaxant is felt to be necessary in patients with those problems, cyclobenzaprine should be the drug tried since its chemical structure resembles a tricyclic antidepressant, and since addiction and abuse of this drug typically do not occur.

Frequency/Duration: This initial dose should be in the evening. Daytime use is acceptable in circumstances where there are minimal CNS-sedating effects and little concern about sedation compromising function or safety. There is no evidence of benefit from higher doses of medication (e.g., cyclobenzaprine 10 mg over 5 mg). If significant daytime somnolence results, then the medication may need to be discontinued, particularly if it interferes with performance of the aerobic exercise and other components of the rehabilitation plan. It is not recommended that the first dose be taken prior to starting a work shift or operating a motor vehicle or machinery.

Discontinuation: Resolution of the pain, non-tolerance, significant sedating effects that carry over into the daytime, or other adverse effects.

D.5.j.ii **Recommended** - as second or third-line agents for moderate to severe radicular pain syndromes or post-surgical pain thought to be musculoskeletal in nature. Other agents may be more efficacious for relieving radicular pain.

Frequency/Duration: One week, generally with a maximum duration of two weeks (or longer if used only at night).

Discontinuation: Resolution of the pain, non- tolerance, significant sedating effects that carry over into the daytime, or other adverse effects.

D.5.j.iii **Not Recommended** - for mild to moderate acute neck pain due to problems with adverse effects, nor are they recommended for chronic use in subacute or non-acute neck pain (other than acute exacerbations).

D.5.k Systemic Glucocorticosteroids (aka "Steroids")

Recommended - in select patients for treatment of acute severe radicular pain syndromes for purposes of obtaining a short-term reduction in pain.

Frequency/Duration: One course (five to 14 days) of oral medication (i.e.: tapering dose of methylprednisolone) be prescribed for a given episode of radicular pain. If additional treatment is needed, epidural steroid injections are preferable since they better target the medication to the affected tissue.

Not Recommended - for axial pain.

Not Recommended - for acute or non-acute neck pain without radicular pain or mild to moderate radiculopathy.

Intravenous Steroids

Recommended - in select patients in the setting of an acute neurological emergency and should be confined only to the hospital setting. The dose and duration of the intravenous steroids should be determined in consultation with spinal cord experts. The risk of permanent neurological damage from acute spinal cord compression generally outweighs the risk of pharmacologic side effects of steroids in an emergency situation.

D.6 Spinal Cord Programs

Spinal cord systems of care provide coordinated, case-managed, and integrated service select individuals with significant spinal cord dysfunction.

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 on the part of the persons served throughout the entire program. 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, physician and therapeutic recreation specialist. As appropriate, the team may also include a rehabilitation counselor, respiratory therapist, social worker, or speech-language pathologist.

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

D.7 Orthotics

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

D.7.a Cervical Collars

D.7.a.i Soft Collars

Recommended - in select patients.

Indications: May be used by patients when in bed to reduce pain to allow sleep when worn with the closure to the front.

Not Recommended

Rationale: Soft Collars are well-tolerated by most patients but do not significantly restrict motion in any plane and are associated with delayed recovery. There is no evidence that their use promotes recovery from cervical sprain. In acute strain/sprain type injuries, use of cervical collars may prolong disability, limit early mobilization, promote psychological dependence, and limit self-activity. There is some evidence that patients encouraged to continue usual activity have less neck stiffness and headache than patients placed in cervical collars following motor vehicle crashes.

D.7.a.ii Rigid Collars, such as a Philadelphia or Miami Orthosis

Recommended - may be useful post-operatively or in emergency situations. These collars restrict flexion and extension motion, and to a lesser degree lateral bending and rotation. Duration of wear post- surgery is dependent upon the opinion of the operating surgeon. Generally used for fracture care and post-operative conditions.

D.7.b Posture Appliances

Not Recommended - in sprain or strain injuries.

D.7.c Cervicothoracic Orthosis

Cervicothoracic Orthoses 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. Generally used for fracture care and post-operative conditions.

Recommended - for the treatment of select traumatic injuries.

Recommended - postoperatively as clinically indicated.

Not Recommended - for sprain or strain type injuries.

D.7.d Halo Devices

Recommended - in the treatment of cervical fracture, dislocation, and/or post-operatively at the discretion of the treating surgeon.

Refer to Halo Immobilization in the Therapeutic Procedures: Operative section of this Guideline.

D.7.e Other Orthoses, Devices and Equipment

Special orthoses 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.

Recommended - in select patients in a structured rehabilitation setting as part of a comprehensive rehabilitation program.

D.8 Restriction of Activities

Recommended- the continuation of normal daily activities, as tolerated, is the recommended treatment for acute and chronic neck injuries without neurologic symptoms.

Complete work cessation should be avoided, if possible, since it often further aggravates the pain presentation. Modified return to work is almost always more efficacious and rarely contraindicated in the vast majority of patients with cervical spine injuries.

D.8.a Establishment of Activity Level Restrictions

For cervical spine injuries, the following should be addressed when describing the patient's activity level:

D.8.a.i Total body position including upper trunk, especially rotation and flexion. To include duration and frequency.

D.8.a.ii Upper extremity requirements including reaching above the shoulder, repetitive motions, pushing, pulling, and lifting or carrying requirements. Duration and frequency should be included.

D.8.a.iii Sitting duration and frequency with regard to posture, work height(s), and movements of the head and neck.

D.8.a.iv Visual field requirements in respect to limitations in head and neck movements and tolerance to looking upward and downward.

D.8.a.v Use of adaptive devices or equipment for proper office ergonomics or to enhance capacities can be included.

D.9 Treatments

D.9.a Rehabilitation Therapy

Rehabilitation (supervised formal therapy) required as a result of a work-related injury should be focused on restoring functional ability required to meet the patient's daily and work activities and return to work; striving to restore the injured worker to pre-injury status in so far as is feasible.

Active therapy requires an internal effort by the patient to complete a specific exercise or task. Passive therapy are those interventions not requiring the exertion of effort on the part of the patient, but rather are dependent on modalities delivered by a therapist. Generally passive interventions are viewed as a means to facilitate progress in an active therapy program with concomitant attainment of objective functional gains. Active interventions should be emphasized over passive interventions.

The patient should be instructed to continue both active and passive therapies at home as an extension of the treatment process in order to maintain improvement levels.

Assistive devices may be included as an adjunctive measure incorporated into the rehabilitation plan to facilitate functional gains.

D.9.a.i Physical / Occupational Therapy

Recommended - to improve function, including range of motion and strength.

Frequency/Dose/Duration: Frequency of visits is usually individualized based on severity of the limitation. Two to three visits per week for two weeks are often used to initiate an exercise program. Total numbers of visits may be as few as two to three for mild patients or up to 12 to 15 with documentation of objective functional improvement.

As part of the rehabilitation plan, patients should be instructed to continue both active and passive therapy, at home as an extension of the treatment process in order to maintain improvement.

Indications: All postoperative and conservatively managed neck injury patients.

Indications for Discontinuation: Resolution of pain, intolerance, lack of efficacy or noncompliance.

D.9.a.ii Activities of Daily Living (ADL)

Activities of Daily Living involve instruction, active-assisted training, and/or adaptation of activities or equipment.

Recommended - in select patients to improve a person's capacity in normal daily activities such as self-care, work re-integration training, homemaking, and driving.

Frequency: Typically three to five times per week with effect seen in four to five treatments for a maximum of six weeks as clinically indicated.

D.9.a.iii Aquatic Therapy

Not Recommended

D.9.a.iv Functional Activities

Functional Activities are interventions which involve the use of therapeutic activities to enhance mobility, body mechanics, employability, coordination, balance, and sensory motor integration.

Recommended – in select patients as clinically indicated

Frequency: Three to five times per week with four to five treatments to produce effect optimum duration four to six weeks.

Maximum Duration: Six weeks

D.9.b Functional Electrical Stimulation

Functional Electrical Stimulation is the application of electrical current to elicit involuntary or assisted contractions of atrophied and/or impaired muscles.

Recommended - in select patients.

Indications: muscle atrophy, weakness, and sluggish muscle contraction secondary to pain, injury, neuromuscular dysfunction or where the potential for atrophy exists May be an appropriate treatment in conjunction with an active exercise program.

Frequency: Typically three times per week with two to six treatments needed to produce effect and a maximum of eight weeks as clinically indicated.

D.9.c Neuromuscular Re-education

Recommended - in select patients

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.

Frequency: Typically three times per week with two to six treatments needed to produce effect and a maximum of eight weeks as clinically indicated.

D.9.d Therapeutic Exercise

Therapeutic Exercise, with or without mechanical assistance or resistance, may include isoinertial, isotonic, isometric and isokinetic types of exercises.

Recommended - in select patients as clinically indicated.

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, increased range of motion, and promotion of normal movement patterns. Can also include complementary/ alternative exercise movement therapy.

Frequency: Typically three to five times per week with two to six treatments needed to produce effect and a maximum of eight weeks as clinically indicated.

D.9.e Electrical Nerve Block

Not Recommended

D.9.f Electrical Stimulation (Physician or Therapist Applied)

Recommended - in select patients as part of a comprehensive treatment plan.

Frequency – Two to three times per week for a maximum of up to two months.

Not Recommended - Electrical Stimulation (like other passive modalities) is not recommended as a stand-alone treatment.

D.9.g Iontophoresis

Not Recommended

D.9.h Manipulation

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. Manipulation in this context does not include reduction of cervical spine dislocations.

Contraindications to manipulation may include joint instability, fractures, severe osteoporosis, infection, metastatic cancer, active inflammatory arthritides, and signs of progressive neurologic deficits, myelopathy, vertebrobasilar insufficiency, or carotid artery disease.
Relative contraindications include stenosis, spondylosis, and disc herniation.

D.9.h.i **Recommended** - for treatment of acute and sub-acute neck pain when tied to objective measures of improvement and there is no evidence of fracture or significant instability. Care needs to be taken in patients with known spinal stenosis.

Frequency: Up to three times per week for the first four weeks as indicated by the severity of involvement and the desired effect, then up to two treatments per week for the next 4 weeks with re-evaluation for evidence of functional improvement or need for further workup. Time to produce effect for all types of manipulative treatment: one to six treatments. Continuance of treatment will depend upon functional improvement.

Optimum Duration: Eight to 12 weeks.

Maximum Duration: Three months. 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.

D.9.h.ii **Recommended** - maintenance program of spinal manipulation (by a physician (MD/DO), chiropractor or physical therapist) may be indicated in certain situations, after the determination of MMI, when tied to maintenance of functional status. (See Section D.10, Therapy: Ongoing Maintenance Care.).

D.9.h.iii **Not Recommended** - prophylactic treatment is not recommended.

Rationale: There is no evidence that prophylactic treatment is effective, either for primary prevention (before the first episode of pain) or for secondary prevention (after recovery from an episode

of neck pain).

D.9.i Manipulation of the Spine under General Anesthesia (MUA)

Not Recommended

D.9.j Manipulation under Joint Anesthesia (MUJA)

Not Recommended

D.9.k Massage (Manual or Mechanical)

Massage (Manual or Mechanical) consists of manipulation of soft tissue with broad-ranging relaxation and circulatory benefits. This may include stimulation of acupuncture points and acupuncture channels (acupressure), application of suction cups and 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.

As with all passive therapies, massage must be accompanied by exercise and patient education. Objective benefit (functional improvement along with symptom reduction) must be demonstrated in order for further treatment to continue.

D.9.k.i **Recommended** - for select use in non-acute neck pain as an adjunct to more efficacious treatments consisting primarily of a graded aerobic and strengthening exercise program.

D.9.k.ii **Recommended** - for acute neck pain and chronic radicular syndromes in which neck pain is a substantial symptom component.

D.9.k.iii **Recommended** - for patients with non-acute neck pain without underlying serious pathology, such as fracture, tumor, or infection.

Frequency: Typically, one to two times per week with immediate effect and a maximum of two months as clinically indicated.

Discontinuation: Resolution, intolerance or lack of benefit.

D.9.k.iv **Not Recommended** - Mechanical devices for administering massage.

D.9.l Mobilization (Joint)

Mobilization consists of 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. It may include skilled manual joint tissue stretching.

Recommended- in select patients as clinically indicated

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, and signs of progressive neurologic deficits, myelopathy, vertebrobasilar insufficiency, or carotid artery disease. Relative contraindications include stenosis, spondylosis, and disc herniation.

Frequency - typically up to three times per week with six to nine treatments to produce effect, optimum duration four to six weeks.

Maximum Duration: Six weeks

D.9.m Mobilization (Soft Tissue)

Mobilization of soft tissue is the skilled application of muscle energy, strain/counter strain, manual trigger point release, and other 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.
Indications include muscle spasm around a joint, trigger points, adhesions, and neural compression. Mobilization should be accompanied by active therapy.

Frequency: Typically up to three per week with four to nine treatments to produce effect, optimum duration four to six weeks.

Maximum Duration: Six weeks

D.9.n Short-Wave Diathermy

Not Recommended

D.9.o Superficial Heat and Cold Therapy (Excluding Infrared Therapy)

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. It includes application of heat just above the surface of the skin at acupuncture points.

Recommended - in select patients as clinically indicated.

Indications: Include acute pain, edema and hemorrhage, need to increase pain threshold, reduce muscle spasm, and promote stretching/flexibility. May be used in conjunction with other active therapy and may be self-administered by the patient.

Frequency: Typically, two to five times per week with immediate effect and a maximum of two months as clinically indicated.

Optimum Duration: Three weeks as primary or intermittently as an adjunct to other therapeutic procedures up to two months.

D.9.p Traction

Manual traction is 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.

Recommended - for select patients with radicular complaints as clinically indicated.

Frequency: Typically, two to three times per week with one to three sessions needed to produce effect immediate effect and a maximum of one month as clinically indicated.

Optimum Duration - 30 days

D.9.q Traction: Mechanical

Recommended - for select patients with radicular complaints as clinically indicated.

Indications: Mechanical traction is most commonly used for patients with radicular findings. It is sometimes used to treat symptoms from decreased joint space and muscle spasm around the joints. If successful it should be shifted to home traction. Traction modalities are contraindicated in patients with tumor, infections, fracture, or fracture/dislocation. A home cervical traction unit may be purchased if therapy proves effective.

Frequency: Typically, two to three times per week with one to three sessions to produce effect and a maximum of four weeks as clinically indicated.

Discontinuation: If response is negative after three treatments, discontinue this modality.

D.9.r Transcutaneous Neurostimulator (TCNS/ Electroanalgesic Nerve Block)

Not Recommended

D.9.s Transcutaneous Electrical Nerve Stimulation (TENS)

Transcutaneous Electrical Nerve Stimulation (TENS) treatment should include at least one instructional session for proper application and use.

Recommended - for select use in treatment of chronic neck pain or chronic radicular pain syndrome as a second line adjunct to other first line treatments.

Indications: Include muscle spasm, atrophy and control of concomitant pain in the office setting. Consistent, measurable, functional improvement must be documented, and a determination made of the likelihood of chronicity prior to the provision of a home unit. TENS treatment should be used in conjunction with active physical therapy.

Maximum Duration: Three sessions. Purchase or provide with home unit if effective.

D.9.t Ultrasound (Including Phonophoresis)

Ultrasound (including Phonophoresis) uses sonic generators to deliver acoustic energy for therapeutic thermal and/or non-thermal soft tissue effects.

Recommended - in select patients as clinically indicated.

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 through the use of sonic generators to the target tissue to control inflammation and pain.

These topical medications include, but are not limited to, steroidal anti-inflammatories and anesthetics.

Frequency: Typically, three times per week with six to 15 treatments needed to produce effect and a maximum of eight weeks as clinically indicated.

Optimum Duration: Four to eight weeks.

D.10 Therapy: Ongoing Maintenance Care

A maintenance program of physical therapy, occupational therapy or spinal manipulation (by a physician (MD/DO), chiropractor or physical therapist) may be indicated in certain situations, after the determination of MMI, when tied to maintenance of functional status.

Although the current body of scientific evidence as reviewed does not support the routine use of this intervention, maintenance therapy modalities may be indicated in certain situations

Recommended - in select patients in order to maintain functional status, without which an objective deterioration of function has been previously observed and documented in the medical record.

Frequency: Maximum up to ten visits per year, after the determination of MMI, according to objectively documented maintenance of functional status. No variance from the maximum frequency is permitted.

Rationale:

- Specific objective goals should be identified and measured in order to support the need for ongoing maintenance care.
- Progressively longer trials of therapeutic withdrawal are to be attempted to ascertain whether therapeutic goals can be maintained in the absence of clinical interventions.
- Within a year and annually thereafter, a trial without maintenance treatment should be instituted.
- The care of chronic neck symptoms should include an ongoing patient self-management program performed by the patient regularly and a self-directed pain management program initiated as indicated:
    - An ongoing clinically appropriate self-management plan, typically independent, home-based and self-directed, developed jointly by the provider and patient, should be implemented to encourage physical activity and/or work activities despite residual pain, with the goal of preserving function.
    - In addition to the self-management plan, a self-directed pain management plan should be developed which can be initiated by the patient in the event that symptoms worsen and function decreases.
- If deterioration of ability to maintain function is documented, reinstatement of ongoing maintenance may be acceptable.

Note: Ongoing Maintenance Care is a component of the Functional Maintenance Care recommendations detailed in the *New York Non-Acute Pain Medical Treatment Guidelines*. Please consult the *New York Non-Acute Pain Medical Treatment Guidelines* for additional information.

E. Therapeutic Procedures: Operative

All operative interventions should be based on a positive correlation with clinical findings, the natural history of the disease, the clinical course, and diagnostic tests. A comprehensive assimilation of these factors should have led to a specific diagnosis with positive identification of the pathologic condition(s). It is imperative for the clinician to rule out non-physiologic modifiers of pain presentation, or non-operative conditions mimicking radiculopathy or instability (peripheral compressive neuropathy, chronic soft tissue injuries,

and psychological conditions), prior to consideration of elective surgical intervention. Early intervention may be required in acute incapacitating pain or in the presence of progressive neurological deficits.

Patients who are not candidates for or refuse surgical treatment should be treated with non-operative therapy as indicated.

If a non-operative treatment approach is initially recommended, surgery may be indicated after the failure of conservative management. The patient must continue to exhibit the designated objective findings, subjective symptoms and (where applicable) imaging findings.

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.

In situations requiring the possible need for re-surgery, a second opinion may be necessary. Psychological evaluation is strongly encouraged when surgery is being performed for isolated axial pain to determine if the patient will likely benefit from the treatment.

Interdisciplinary interventions should be strongly considered post-operatively in patients not making functional progress within expected time frames. Return to work activity restrictions should be specific. Most cervical non-fusion surgical patients can return to a limited level of duty between 3 to 6 weeks. Full activity is generally achieved between 6 weeks to 6 months, depending on the procedure and healing of the individual.

E.1 Acute Fractures and 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.

E.1.a Halo Immobilization

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

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

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.

Operative Treatment: Placement of the pins and apparatus.

Post-Operative Care: Traction may be required for re- alignment and or fracture reduction (amount to be determined by surgeon), active and/or

passive therapy, pin care.

E.1.b Anterior and/or Posterior Decompression with Fusion

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

Complications may include: Instrumentation failure such as screw loosening, plate failure, or dislodgement, 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), paralysis and iatrogenic kyphosis

Surgical Indications: When a significant or progressive neurological deficit exists in the presence of spinal canal compromise and/or spinal instability.

Operative Treatment: Anterior and/or 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.

Post-Operative Care: Cervical bracing, physical therapy and occupational therapy may be required post-operatively may be appropriate (usually 6-12 weeks with fusion). Home programs with instruction in ADLs, sitting, 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, is appropriate once the fusion is solid and without complication. Active treatment, which patients should have had prior to surgery, 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.

E.2 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 is being considered, it is recommended that the patient refrain from smoking for at least six 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.

General Indications for Surgery: Operative intervention should be considered and a consultation obtained when improvement of symptoms has plateaued and the residual symptoms of pain and functional disability are unacceptable, Generally, surgical consultation should occur after at least 6 months of non-surgical treatment consistent with the medical treatment guidelines.

Patients with significant and/or progressive neurologic deficits may be earlier candidates for surgical intervention. Choice of hardware instrumentation is based on anatomy, the patient's pathology, and the surgeon's clinical judgement.

E.2.a Specific Surgical Indications

E.2.a.i Myelopathy

Recommended - in select patients as clinically indicated

Indications: Patients with myelopathy immediate surgical evaluation and treatment should be considered.

E.2.a.ii Cervical Radiculopathy

Early intervention may be required for acute incapacitating pain or in the presence of severe/progressive neurological deficits.

Persistent or recurrent arm pain with functional limitations, unresponsive to conservative treatment after six weeks; or progressive functional neurological deficit; or static neurological deficit associated with significant radicular pain; and confirmatory imaging studies consistent with clinical findings.

E.2.a.iii Persistent Non-Radicular Cervical Pain

While cervical fusion is appropriate treatment for neck pain due to degeneration with radiculopathy, there is no evidence that cervical fusion for neck pain alone produces results superior to conservative care. In the absence of a radiculopathy, it is recommended that conservative measures be exhausted before a commitment to surgical intervention is made. The effectiveness of cervical vertebral fusion for non-radicular pain has not been established. Therefore, it should not be routinely recommended. In patients with non-radicular cervical pain for whom fusion is being considered, required pre-operative indications include all of the following criteria.

If the program of non-operative treatment fails, operative treatment may be indicated when:

- Improvement of the symptoms has plateaued, and the residual symptoms of pain and functional disability are unacceptable at the end of six to 12 weeks of active treatment, or at the end of longer duration of non- operative programs for debilitated patients with complex problems;

and/or

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

- Mere passage of time with poorly guided treatment is not considered an active treatment program.

- All pain generators are adequately defined and treated; and

- Physical medicine and manual therapy interventions have been exhausted and failed to resolve the patient's symptoms; and

- X-ray, MRI, or CT demonstrating disc pathology or spinal instability; and

- Spine pathology limited to two levels; and

- Psychosocial evaluation for confounding issues addressed.

- For any potential surgery, it is recommended that the patient refrain from smoking for at least six 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.

E.2.b Surgical Procedures

Recommended - in select patients as clinically indicated.

Surgical procedures include:

E.2.b.i Cervical Discectomy with or without Fusion:

Description: Procedure to relieve pressure on one or more nerve roots or spinal cord. It may be performed with or without the use of a microscope.

Complications: May include graft dislodgment, infection, hemorrhage, CSF leak, hematoma, catastrophic spinal cord injury causing varying degrees of paralysis, pseudarthrosis, in-hospital mortality, non-union of fusion, donor site pain (autograft only). Anterior approach: permanent or transient dysphonia, permanent or transitory dysphagia, denervation, esophageal perforation, and

airway obstruction.

Surgical Indications: Radiculopathy from disc herniation or spondylosis, spinal instability, or patients with non- radicular neck pain meeting fusion criteria.

Operative Treatment: Cervical plating may be utilized used to prevent graft displacement and enhance fusion rates.

Post-Operative Care: Cervical bracing, physical therapy and/or occupational therapy may be required as clinically indicated. Home programs with instruction in ADLs, sitting, 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 ROM is appropriate, once fusion is solid and without complication. Active treatment, which patients should have had prior to surgery, 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.

E.2.b.ii Cervical Corpectomy

Description: Removal of a portion or the entire vertebral body from the front of the spine: this will generally involve at least a one level discectomy and will involve a fusion procedure.

Complications: May include t graft dislodgment infection, hemorrhage, CSF leak, hematoma, catastrophic spinal cord injury causing varying degrees of paralysis, pseudarthrosis, in-hospital mortality, non-union of fusion, donor site pain (autograft only). Anterior approach: permanent or transient dysphonia, permanent or transitory dysphagia, denervation, esophageal perforation, and airway obstruction.

Surgical Indications: Single or multilevel spinal stenosis, spondylolisthesis, or severe kyphosis, with cord compression.

Operative Treatment: Neural decompression, fusion with instrumentation, possible halo vest placement to maintain cervical position.

Post-Operative Care: Cervical bracing, physical therapy and/or occupational therapy may be required as clinically indicated. Depending upon number of vertebral bodies involved, healing time may be longer than discectomy. Halo vest care has traditionally been required, but new techniques in cervical fusion with instrumentation may permit more rapid mobilization. Home programs with instruction in ADLs, sitting, 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 is appropriate

for most patients once the cervical spine is deemed stable and without complication. The goals of the therapy program should include instruction in a long-term home-based exercise program.

E.2.b.iii Cervical Laminectomy with or without Foraminotomy and/or Fusion

Description: Surgical removal of the posterior portion of a vertebra in order to gain access to the spinal cord or nerve roots.

Complications: May include perineural fibrosis, kyphosis, nerve injury, post-surgical instability, CSF leak, infection, non-union of fusion, hardware failure, donor site pain (autograft only), paralysis, death.

Surgical Indications: Neural compression.

Operative Treatment: Laminotomy, partial discectomy, nerve root decompression, laminectomy.

Post-Operative Care: Cervical bracing, physical therapy and/or occupational therapy may be required as clinically indicated. Therapy: Cervical bracing may be appropriate (usually six to 12 weeks with fusion), although newer surgical techniques may not require prolonged immobilization. Home programs with instruction in ADLs, sitting, 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 is appropriate for most patients once the cervical spine is deemed stable and without complication. The goals of the therapy program should include instruction in a long-term home- based exercise program.

E.2.b.iv Cervical Laminoplasty

Description: Technique that increases the dimensions of the spinal canal while leaving posterior elements partially intact.

Complications: Loss of cervical motion. May include perineural fibrosis, kyphosis, nerve injury, post-surgical instability, CSF leak, infection, non-union of fusion, hardware failure, donor site pain (autograft only), paralysis, death.

Surgical Indications: Cervical spinal stenosis and/or spondylitic myelopathy. Not indicated in cervical kyphosis.

Operative Treatment: Posterior approach, with or without instrumentation.

Post-Operative Care: Cervical bracing, physical therapy and/or

occupational therapy may be required as clinically indicated. Therapy: May include four to 12 weeks of cervical bracing. Home programs with instruction in ADLs, sitting, 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 range of motion is appropriate once the cervical spine is stable and without complication. Active treatment, which patients should have had prior to surgery, 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.

E.2.b.v Percutaneous Discectomy

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

Complications: Include, but are not limited to, injuries to nerves or blood vessels, infection, and hematoma.

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 disc herniations or bulges with associated radiculopathy due to lack of evidence to support long-term improvement.

Operative Treatment: Partial discectomy.

E.3 Electrical Bone Growth Stimulators

Electrical Bone Growth Stimulators are not included on the list of pre- authorized procedures. Providers who want to perform one of these procedures must request pre-authorization from the carrier before performing the procedure.

E.3.a **Recommended** - as an adjunct to spinal fusion surgery for those at high risk for pseudoarthrosis.

Indications: Include one or more of the following fusion failure risk factors:

1) One or more previous failed spinal fusion(s)
2) Grade II or worse spondylolisthesis
3) Fusion to be performed at more than one level
4) Presence of other risk factors that may contribute to non-healing:
    - Current smoking
    - Diabetes
    - Renal disease

- Other metabolic diseases where bone healing is likely to be compromised (e.g.: significant osteoporosis)
- Active alcoholism
- Morbid obesity BMI >40

E.3.b **Recommended** - as treatment for individuals with failed spinal fusion. Failed spinal fusion is defined as a spinal fusion that has not healed at a minimum of six months after the original surgery, as evidenced by serial x-rays over a course of three months during the latter portion of the six-month period.

E.4 Cervical Artificial Disc Replacement

Cervical Artificial Disc Replacement (Single or Two Level)

This involves the insertion of a 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. Only FDA-approved artificial discs are appropriate.

Cervical Arthroplasty is Indicated in Patients Meeting the Following Criteria:

- Skeletally mature
- Myelopathy or myeloradiculopathy related to central spinal stenosis from one or two level degenerative disease (either herniated disc or spondylotic osteophyte) from C3-4 to C6-7 with or without neck pain.
- Clinically symptomatic cervical radiculopathy and/or myelopathy due to neural compression C3-C7 at one-level or two contiguous levels.
- Failed at least 6 months of nonsurgical treatment consistent with the medical treatment guidelines or shows signs of progressive clinical deterioration.
    - Persistent or recurrent symptoms/pain with functional limitations that are unresponsive to at least 6 months of appropriate conservative treatment consistent with the medical treatment guidelines; AND
    - Documented failure of at least 6 consecutive weeks of any 2 of the following physician-directed conservative treatments:

        1) Analgesics, steroids, and/or NSAIDs
        2) Structured program of physical therapy
        3) Structured home exercise program prescribed by a physical therapist, chiropractic provider or physician
        4) Epidural steroid injections and or facet injections /selective nerve root block; AND

- Imaging studies confirm the presence of compression at the level(s) corresponding with the clinical findings (MRI or CT); AND
- No prior neck surgery.

Cervical Artificial Disc Replacement is NOT indicated when any of the following clinical scenarios exists:

a) Symptomatic multiple level disease affecting 3 or more levels
b) Degenerative disease adjacent to a previous cervical fusion
c) Infection (at site of implantation or systemic)
d) Osteoporosis or osteopenia
e) Instability
   i) Translation greater than 3mm difference between lateral flexion-extension views at the symptomatic levels;
   ii) 11 degrees of angular difference between lateral flexion-extension views at the symptomatic levels
f) Sensitivity or allergy to implant materials
g) Severe spondylosis defined as:
   i) > 50% disc height loss compared to minimally or non-degenerated levels; OR
   ii) Bridging osteophytes: OR
   iii) Absence of motion on lateral flexion-extension views at the symptomatic site
h) Severe facet arthropathy
i) Ankylosing spondylitis
j) Rheumatoid arthritis
k) Previous fracture with anatomical deformity
l) Ossification of the posterior longitudinal ligament (OPLL)
m) Active cervical spine malignancy

E.5 Percutaneous Radiofrequency Disc Decompression

Not Recommended

E.6 Epiduroscopy and Epidural Lysis of Adhesions

Refer to Therapeutic Injections

E.7 Intraoperative Monitoring

Intraoperative Monitoring is a common intraoperative electrodiagnostic technique that may include somatosensory evoked potentials (SSEP), motor evoked potentials (MEP), or instrumentation monitoring. The monitoring procedure may be used to evaluate spinal cord integrity and instrumentation placement during the operative procedure. The use of intra-operative monitoring is at the discretion of the operative surgeon as clinically indicated.

E.8 Implantable Spinal Cord Stimulators (SCS)

Please consult the *New York Non-Acute Pain Medical Treatment Guidelines* for

information about Spinal Cord Stimulators. Spinal Cord Stimulators are not included on the list of pre-authorized procedures. Providers who want to perform one of these procedures must request pre- authorization from the carrier before performing the procedure.

Sources:

This Treatment Guideline is adopted, with modification, from the State of Colorado's Cervical Spine Injury Medical Treatment Guideline.

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