Clinical Best Practices:
Cervical Pain

Introduction

Neck pain imposes an enormous personal and socioeconomic burden on society, with a prevalence approaching that of low back pain and disability rates ranking within the top five in the US.[1] Cervical pain “comprises approximately 18% to 23% of chief complaints in chiropractic practice.”[2]

There is much evidence that supports a conservative approach for most episodes of cervical pain, and many guidelines to support these approaches. As chiropractic physicians, we know functional limitations, pain and recurrences which lead to chronicity, and the escalating costs of treatment can frequently be minimized with appropriate chiropractic treatment, including but not limited to, spinal manipulation, physical therapy modalities, exercise, and patient education.

As a clinically integrated physician network, we strive to improve quality of care, treatment outcomes, and the delivery of cost-efficient healthcare. To achieve these goals, in part, HNS has and continues to develop “best practices” to assist our network physicians in the management of various musculoskeletal conditions. The following Best Practices are for the diagnosis and management of cervical pain in patients 18 years of age or older.

The term “Best Practice" is somewhat ambiguous, but is often used to indicate what institutions and well-regarded practitioners are doing. In short, a best practice is a method or practice that conventional wisdom suggests, *is effective and will reliably lead to desired and/or improved outcomes.*

The creation of these best practices was under the purview of the 2019-2022 HNS’ Professional Affairs Advisory Boards (PAAB). The PAABs comprise more than seventy chiropractic physicians practicing in North and South Carolina. The PAABs were charged with identifying previously published clinical guidelines for inclusion in these best practices and for recommending additional clinical guidelines that, based on clinical experience, are likely to improve treatment outcomes while ensuring clinical efficacy.

While many of these best practices are evidenced-based, in areas where there was disagreement between the evidenced-based guideline and the opinion of the physicians serving on the PAABs, the opinion of the PAAB is duly noted.

Statement of Intent:

The treatment recommendations that follow are intended for the “typical” adult patient presenting with cervical pain with or without upper extremity involvement. These best practices are not intended to serve or be construed as a “standard of care” for each patient nor to be used as a substitute for the independent judgement of the chiropractor. Adherence to these guidelines will not ensure a successful outcome for every patient. There are other acceptable methods of evaluation and treatment aimed for the same result. The decision to utilize a particular assessment, clinical procedure or treatment plan must be made by the chiropractor in light of the clinical data presented by the patient, the diagnostic and treatment options available, and the patient’s preferences and values.

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II. Documentation - Performance Expectations

As the legal document substantiating healthcare services provided to the patient, the healthcare record serves as a method of communication among healthcare providers caring for a patient and *provides supporting documentation for reimbursement sought for services provided to a patient.* As such, regardless of the patient's presenting symptoms/condition, a healthcare record must be created (and maintained per legal requirements) for each patient who receives care at the provider's practice, whether care was provided by the physician or his/her support staff.

Thorough, precise, and timely documentation of services provided is essential for sound clinical decision-making and is in the best interest of each healthcare provider, his/her patients, and of the payors responsible for the payment of those services.

Excellent clinical documentation improves safety and quality of care, treatment outcomes, reduces errors and unnecessary testing, and is paramount to appropriate continuity of care. Conversely, the lack of appropriate and accurate documentation can lead to negative treatment outcomes, potential safety and quality of care issues, and higher healthcare costs.

To help ensure healthcare provided by HNS Network Physicians is appropriate, and is properly documented, HNS has developed *HNS Best Practices - Clinical Quality and Documentation Standards*. These best practices *represent HNS' performance expectations for all contracted physicians regarding appropriate documentation in the healthcare record.* These Best Practices are posted on the HNS Website under 'Clinical Resources'.

III. Assessment

A thorough assessment of patients presenting with cervical pain is essential. The assessment should focus, in part, on the presence or absence of red flags, and will determine the appropriate pathway of care for each patient.

The history and examination provide the clinical rationale for appropriate diagnosis and subsequent treatment planning. The history and physical examination should attempt to separate individuals with cervical pain into one of the three categories below, to determine the appropriate treatment strategy.

- Serious pathology (red flags)
- Radicular nerve involvement
- Mechanical cervical pain

Assessment should include, but is not limited to, the following:

- History (Presence of red and/or yellow flags)
- Functional Deficit Measurement
- Examination
- Imaging and other diagnostic testing (as applicable)
- Consideration of coordination of care/referrals

A. History

A carefully obtained and thorough history inevitably yields critical information in the assessment of cervical pain, and should include:

- Onset and duration of pain
- Quality of pain
- Site and radiation
- Precipitating and relieving factors
- Severity and functional impact
- Neurological deficits
- Symptoms of systemic illness
- Current and past health conditions, including previous whiplash injuries, concussion, loss of consciousness, or other injuries
- Has the patient received a covid-19 vaccination and when?
- History of stroke/TIA, headaches, tinnitus, vertigo, diplopia, drop attacks, dysphagia, nystagmus, numbness, ataxia, first or worst headache or neck pain ever, and nausea
- Family medical history
- Social history
- Current and relevant past medications and nutraceuticals (both prescriptive, over-the counter and natural products)
- Past and present treatment for the presenting condition and results of that treatment
- Previous relevant imaging studies (or other diagnostic testing)
- All health risk factors
- History of temporal mandibular joint dysfunction, trigeminal neuralgia, rheumatoid arthritis
- History of recent spinal tap and/or subsequent severe headaches when upright which were resultant from CSF leak
- History of any thyroid issues, such as goiter which interfered with swallowing
- History of any undue stress

- History about sleep (positions, pillow use, wake with neck discomfort)

During the history, obtain the name of the patient's primary care provider and/or medical specialist, and permission to contact to facilitate coordination of care.

1. Red Flags

"Red flags" are the current clinical features and prior illnesses that suggest the possibility of a more serious underlying illness that may require immediate referral, additional evaluation, or co-management.

A focused history and clinical examination are the most critical tools for identifying risk factors for serious disease in a patient who presents with cervical pain.

At each visit, DCs should evaluate for the presence or absence of red flags. Identification of a red flag in patients with cervical pain warrants close attention and suggests the need for further investigation and possible specialist referral as part of overall treatment strategy.

As stated in *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain*[2]:

> Patients presenting with signs suggestive of potential evolving stroke, such as a patient reporting "**the worst headache ever**," may require emergent referral to a hospital for definitive evaluation and care.
>
> [R]ed flags do not necessarily require referral or present a contraindication to spinal manipulation or other chiropractic procedures. These depend on the findings of the additional evaluation. Although some red flags represent contraindications to the use of high-velocity-low-amplitude manipulation, other approaches using less biomechanical force may be used to address the musculoskeletal disorders while the red flag issues are being addressed via further diagnostic testing, referral, or interdisciplinary care coordination.[2]

While positive red flags are typically indications for imaging, red flags should be evaluated in the context of the clinical presentation as a whole**.**

The table below contains examples of potential red flags that may be discovered during the patient history or examination.

Red Flags[2]: Cervical Pain

Red Flags: **History**

- Known connective tissue disease
- Osteopenia
- Significant trauma or infection
- Unexplained/novel neck pain especially ages <20 or >55
- Cancer
- Unexplained weight loss
- Severe nocturnal pain
- Confusion/altered consciousness
- Visual or speech disturbances
- Weakness or loss of sensation

Red Flags: **Examination**

- Abnormal upper extremity sensory, motor, or deep tendon reflexes
- Fever > 100°F
- Nuchal rigidity
- Positive Rust, Lhermitte, Hoffman or Babinski sign
- Pain pattern unrelated to movements or activities
- Osteopenia

Fig. 1 *Red flags on history and examination*[2]

2. Yellow Flags

While the presence of red flags indicates the potential for serious life or limb threatening pathology, psychosocial risk factors (yellow flags) include the patient's attitudes and beliefs, emotions, behaviors, and family and workplace factors which may impact the patient's response to your proposed treatment plan.

In *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain*, the authors state, "Optimal treatment frequency and duration must be determined on an individual basis, considering barriers to recovery such as yellow flags . . . ."[2]

Per the article, yellow flags include:

- Belief that pain is harmful
- Belief that activity should be avoided
- Negative attitude or depression
- Work-related stress
- Lack of social support, and

- Current compensation and claims issues related to neck pain.

In determining the impact of identified yellow flags, doctors "may want to use an outcome assessment tool such as the Fear Avoidance Behavior Questionnaire to evaluate psychological factors that might delay recovery."[2]

HNS further agrees that:

> When relevant psychological factors are identified, the rehabilitation approach should be modified to emphasize active rehabilitation, graded exercise programs, positive reinforcement of functional accomplishments, and/or graduated exposure to specific activities that a patient fears as potentially painful or difficult to perform.[3]

As with red flags, DCs should evaluate yellow flags in the context of the clinical presentation as a whole**.**

3. Functional Deficit Measurement (Baseline Outcome Assessment)

The importance of a patient's perspective regarding his/her condition relative to function, pain, health status, work disability, and effectiveness of treatment is well-known and should be established prior to the onset of treatment.

The use of valid outcome assessment tools in a proper and timely fashion will establish and benchmark functional deficits within a patient treatment plan and establish medical necessity for ongoing care.

Patient based outcome measures must be utilized with the *initial exam* and then *during each re-evaluation* administered at regular intervals during treatment to evaluate patient improvement and treatment effectiveness.

Further, the proper use of outcome assessment tools address the growing emphasis of third-party payors on outcome-based systems for reimbursement.

As stated in *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain*:

> Clinicians should assess baseline status and monitor changes in pain, function, disability, and psychosocial functioning. … Patient based outcome measures are useful when administered at the initial exam and during re-evaluations at regular intervals during treatment to evaluate for patient improvement and treatment

effectiveness. The use of reliable and valid . . . [outcome assessment tools will] . . . establish and benchmark functional deficits within a patient treatment plan and establish medical necessity for ongoing care.[2]

Examples of reliable and valid outcome assessment tools include, but are not limited to, the following:

a. Bournemouth Neck Questionaire
b. Neck Disability Index (NDI)
c. Numeric Rating Scale for Pain (NRS)
d. Patient-Specific Functional Scale (PSFS)
e. NeckPix Questionnaire[2]

4. Radicular Pain

Thorough history and evidence-informed examination are critical components of chiropractic clinical management, particularly in the presence of radicular complaints. These procedures provide the clinical rationale for appropriate diagnosis and subsequent treatment planning.

If radiating pain, in addition to the above, History should include the following questions:

a. Does the patient have a history of previous radicular symptoms?

b. Questions to differentiate where the radiating pain comes from:

   i. Where is the pain?
   ii. How far down the arm does pain radiate, and into what fingers?
   iii. Is the radiating pain related to positional changes?
   iv. Is the arm pain bilateral? (If so, consider spinal stenosis, metastatic carcinoma, pathologic fractures., central disc prolapse, multiple sclerosis, etc.)

c. Did the arm pain, tingling, or numbness occur prior to the presence of cervical pain? (If so, consider thoracic outlet syndrome or other pathological etiologies.)

d. Is the pain constant or intermittent?

e. Do the arm symptoms exacerbate with activity and immediately remit with rest?

f. How long is the refractory period before pain goes away?

g. Questions regarding comorbidities, such as neurologic, smoking, alcohol use, obesity, side effects of statins, chemotherapy, and to rule out thoracic outlet syndrome or other myofascial considerations

5. Red Flags – Radicular Pain
   No changes to above recommendations.

B. Examination

The initial examination is intended to identify the etiology of the patient's presenting complaints. The history should focus the extent and region of the examination, *i.e.,* the physician should conduct a condition specific examination.

Outcome assessments must be utilized during the initial examination in order to establish a functional baseline, and, in part, in determining treatment strategy.

Key aspects of the physical examination in patients with cervical pain include:

- Vitals (at a minimum, weight, pulse, and blood pressure)
- Observations (e.g., patient's posture, gait, demeanor, pain behavior)
- Palpation, including structural abnormalities, tenderness, muscle spasticity, thyroid enlargement/abnormality, etc.
- Outcome assessments to establish a functional baseline
- Outcome assessments for pain
- Appropriate chiropractic tests including spinal palpation findings and ROM testing
- Relevant orthopedic and neurological tests (orthopedic tests with good reliability and validity include Spurling, Valsalva, neurodynamic testing, cervical distraction, and the cervical flexion-rotation test.)[4]
- Consideration of imaging studies and other diagnostic tests

  "In addition, evaluation of cognition, orientation, cranial nerve testing, cerebellar (Rhomberg's, finger to nose, heel-toe walking, etc.) tests, fund of knowledge, etc. may be warranted in the context of potential or documented concussion, whiplash, or suspected vertebral artery injury."[5]

Testing to determine site of treatment using spinal manipulation can include, among others, cervical compression and traction tests, McKenzie maneuvers, prone instability test, etc. A painful arc in flexion and/or on return to an upright posture and the prone instability test may suggest local instability.

For a summary of evidence-based recommendations of procedures for determining the site of care for chiropractic manipulation to the cervical spine, see Triano JJ, Budgell B, Bagnulo A, et al. Review of methods used by chiropractors to determine the site for applying manipulation. *Chiropr Man Therap.* 2013;21(1):36.

Instrument assessment of stiffness, motion palpation, and muscle testing to localize nerve root levels are also recommended.

Cervical pain is often nonspecific and therefore cannot be attributed to a definite cause. Careful history-taking and physical examination is crucial in attempting to diagnose the underlying cause and in determining the most appropriate pathway to treatment.

1. Radicular Pain

If radiating pain, in addition to the above, examination should include:

a. Inspection of upper extremity for pitting edema, asymmetrical radial pulse, bilateral upper extremity blood pressure variations, color changes, wounds, or temperature changes.

b. Evaluation for upper extremity compartment syndrome or vascular insufficiencies (notation of discoloration of patient's nail beds to rule out vascular etiology).

c. Endeavoring to identify upper extremity motor deficits, muscular weakness, and/or atrophy.

d. Testing to determine what dermatome is affected.

e. Testing to rule out myofascial entrapment syndromes, such as thoracic outlet syndrome, carpal tunnel syndrome and radicular TMJ pain.

f. Compression testing to rule out cervical cord compression

C. Cervical Artery Dissection (CAD)

Vertebral and carotid artery dissections are very uncommon causes of stroke, reportedly 3,000 of the ~ 700,000 strokes, largely atherosclerotic, occurring annually in the US. However, they are one of the most common strokes in patients 18 - 45 yo. Overall, dissection accounts for 2% of all ischemic strokes. Incidence of CAD associated with CMT reported in the literature is 1 in 5.85 million cervical adjustments.[6]

The basic pathology of cervical artery dissections (CAD) is typically an intimal tear with associated thrombus formation creating an intramural

hematoma, altering hemodynamics and/or embolizing distally. The thrombus is invariably the source of the emboli that produces an ischemic stroke. The vertebral artery is the major source of arterial circulation to the cerebellum and since the posterior inferior cerebellar artery (PICA) is the first intracranial branch of the vertebral artery, it is most commonly the site of occlusion. This is why CAD symptoms are associated with cerebellar ischemia; hence the 5 D's and 3 N's; dizziness, drop attacks, diplopia, dysarthria, dysphagia, ataxia, nausea, numbness, and nystagmus. However, the effect of altered arterial flow as a result of a dissection can be few or minimal symptoms, transient ischemic attack(s), or the classic upper cervical pain and/or occipital headache and vertigo associated with the intimal tear. If the evolving thrombus begins to restrict blood flow, ischemic symptoms (noted above) may present, and if the thrombus embolizes into the PICA, a cerebellar infarction and CVA may occur.

The literature does not support a causal relationship between cervical manipulation and CAD.[7] Current opinion suggests that CADs arise spontaneously secondary to a predisposing weakening of the arterial wall. Numerous, otherwise innocuous activities have been associated with CAD, including sneezing, yoga, washing hair, minor trauma, and provocative maneuvers including ROM testing and pre-manipulative screening tests. This is why there is an equal temporal relationship between CAD and chiropractic visits and PCP office visits. The assumed reason for this observation is that the majority of patients with symptoms initially associated with a CAD, i.e., neck pain, headache, vertigo, etc. are a result of an evolving dissection when they present to their chiropractic physician or their PCP.[8] This temporal relationship is akin to saying we've observed a relationship between people having cancer and seeing an oncologist.

However, because of this temporal association between CMT and CAD, public opinion wants to assume there is a causal relationship or as one NCMIC attorney asked, "is it because the rooster crows that the sun rises!?" The challenge therefore for our profession is being clinically vigilant as to when dissection should be included in our diagnostic triage. Emergency thromboembolytic intervention is most effective in the first 90 minutes and only moderately effective after a few hours. Therefore, for these patients, time is of the essence.

As we've noted previously in this document, history may alert providers to any predisposition to CAD, even in the absence of telling symptoms. Inheritable conditions associated with arteriopathy secondary to connective tissue disorders include Marfan's disease, Ehler Danlos syndrome, polycystic kidney disease, osteogenesis imperfecta, and fibromuscular dysplasia. With the exception of high blood pressure, other

vascular risk factors commonly associated with atherosclerotic stroke, have little clinical significance in ischemic stroke. Homocystinemia (namely B-6, B-9, and B12 deficiencies), smoking, aural vestibular migraines (presumably secondary to a congenital vertebral artery hypoplasia), easy bruising, history of TIA or stroke in patient or family (esp. < 45 yo), recent respiratory infection treated with fluoroquinolone based antibiotic, intense headache (unlike anything previously experienced), and, of course, constellation of ischemic symptoms such as dysphagia, pulsatile tinnitus, hoarseness, facial tingling, vertigo, nausea, ataxic gait or disequilibrium, etc. should alert the physician of either the predisposition or presence of a dissection.[9]

The important clinical pearl is the phrase, "I have a pain in my head and/or neck that is different than anything I have ever had before." Research shows that of those patients who experienced a CAD, over 50% had an acute onset of upper cervical and occipital pain radiating into the hemicranium. The pain was described as throbbing and sharp: the "thunderclap" headache.

Differentiating the patient with neck pain and/or headache of musculoskeletal origin versus vascular etiology is challenging. Musculoskeletal pain is often reproducible with provocative movements or palpation and relieved by other movements. These patients also have restricted active range of motion and weak anterior neck flexors. Helpful orthopedic tests include cervical flexion rotation, Spurlings, and cervical distraction which, when positive, suggest a musculoskeletal etiology. If the patient's symptoms are suggestive of a dissection, i.e., unusual, throbbing headache of acute onset with upper cervical pain, regional cervical exam should include cerebellar testing, cranial nerve testing, and blood pressure. If you continue to be suspicious of an evolving dissection, further evaluation with magnetic resonance angiogram (MRA) to evaluate vessels is warranted. Of note, there are no reliable pre-manipulative vascular screening tests and any of these maneuvers can make a bad situation worse.

> “Premanipulative screening protocols are limited in their ability to identify those at risk. One difficulty is that the early features of CAD can mimic a musculoskeletal presentation, and a patient may present for treatment of neck pain and headache with an arterial dissection that is already in progress and potentially the cause of the neck pain or headache. Early recognition of this serious pathology is critical, so that medical management may be initiated promptly to improve prognosis and to avoid inappropriate conservative treatment.”[10]

If a patient demonstrates frank ischemic symptoms, most commonly nausea, vertigo, headache, and ataxia either upon presentation or after

CMT, adjusting is contraindicated as it may disrupt the thrombus. Place the patient on their side, do not give them anything by mouth, and the provider should monitor their vitals and watch for new symptoms (nystagmus, slurring, diplopia, etc.). If symptoms persist > 5 min. or worsen, call 911. Upon arrival, inform the EMT of your suspicion that this may be a CVA secondary to CAD. Do not send the patient home if they are unstable or dismiss their symptoms as a normal reaction to the adjustment. Taking a casual approach to an escalating medical emergency and failing to make a timely and appropriate referral can lead to very unfortunate consequences.

1. Indications
    - Headache "Is the worst headache I have ever had. It is unlike any headache I have ever had in my life."
    - History is positive for 18–45-year-olds
    - Inheritable connective tissue disorders
    - High blood pressure
    - Smoking
    - Aural vestibular migraines
    - Recent respiratory infection treated with fluroquinolone antibiotics
    - TIA or stroke
    - Unique thunderclap headache

2. 5 D's and 3 N's
    - Dysphagia
    - Dysarthria
    - Diplopia
    - Dizziness
    - Drop Attacks
    - Ataxia
    - Nausea
    - Nystagmus
    - Numbness
    - Think F.A.S.T.
    - Facial: smile?
    - Arms: raise both arms?
    - Speech: slurred?
    - Time: time is of essence

D. Diagnostic Testing

Imaging and other diagnostic tests are indicated in the presence of severe and/or progressive neurologic deficiencies or if the history and physical examination cause suspicion of serious underlying pathology.

1. Imaging

For a very thorough review of clinical indications for the appropriate utilization of spinal imaging, refer to Bussieres, et al. *Diagnostic Imaging Practice Guidelines for Musculoskeletal Complaints in Adults*. J Manipulative Physiol Ther. 2008:31(1).

HNS agrees with *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain* in that:

> Similar to the history and examination, consideration of imaging must also be condition specific. It should not be based on philosophy, office policy, or financial considerations. . . . The skill, training, and experience of the provider are important components of the clinical decision making and should be considered when evaluating the medical necessity of any diagnostic procedure, including plain film x-ray.[2]

The following types of imaging modalities are most frequently used in the diagnostic process:

a. Plain film or digital radiographs
b. CT
c. MRI
d. Bone Scan
e. Ultrasound

Plain X-Rays

As stated in *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain,* for acute neck pain, “Imaging is indicated in the initial assessment of patients with acute neck pain when myelopathy, suspicion of significant ligamentous injury, or presence of red flags is noted.”[2]

Moreover, as reported by the American College of Radiology, HNS agrees that:

> It is usually appropriate to perform anteroposterior and lateral views of the cervical spine as a first study in patients with (1) chronic neck pain with or without a history of trauma, (2) history of malignancy, (3) history of neck surgery in the distant past. Diagnostic imaging for the purpose of identifying spinal degeneration is not recommended.[2]

Additionally, flexion/extension studies are warranted with a history of Rheumatoid Arthritis or neck surgery.

"There is no high-quality evidence to suggest that serial radiography of the cervical spine is a useful tool with high clinical yield."[2]

It is the position of the HNS Professional Affairs Advisory Boards, however, that clinical decision-making regarding the appropriateness of all diagnostic testing (particularly x-rays) should be determined by the chiropractor in light of the clinical data presented by the patient, the diagnostic and treatment options available, and the patient's preferences and values.

CT/MRI
CT and MRI testing should be considered only after a careful review of the history and results of the physical examination, and/or in response to treatment.

CT and MRI scans of the cervical spine are more sensitive than plain films but are generally only indicated for patients with neck pain if clinical findings suggest possible emergent conditions affecting the spine.

- MRI is preferred to CT because it provides better visualization of non-bony structures and does not subject patients to radiation.[11]

- CT is superior for revealing bony abnormalities and produces a detailed composite view of the neck.[11]

Bone scans
Bone scans are used to detect and monitor infection, fracture, or disorders in the bone.

Ultrasound imaging
Ultrasound imaging (sonography) uses high-frequency sound waves to obtain images inside the body. Ultrasound imaging can show tears in ligaments, muscles, tendons, and other soft tissue masses in the neck.

2. Imaging Studies Taken Elsewhere

If the patient brings (or provides) past healthcare records, including but not limited to, results of imaging studies, copies of these should be added to the patient's healthcare record.

Further, the healthcare record must include a summary of all relevant information obtained from the review of the records/studies, and this summary must be signed by the DC.

3. Other Diagnostic Tests

As with imaging studies, other diagnostic tests, including but not limited to electrodiagnostic and laboratory tests, should be considered only after careful review of the history and results of the physical examination, and in response to treatment.

Electrodiagnostics

Electrodiagnostics are primarily used to confirm whether a person presenting with cervical pain has radiculopathy. The procedures include electromyography (EMG), nerve conduction studies (NCS), and evoked potential (EP) studies.

Laboratory tests

Laboratory tests are generally not necessary in the initial evaluation of cervical pain. However, they may be used if the physician suspects infection, inflammatory arthritis, or cancer.[11]

4. Radicular Pain

If radiating pain, imaging studies should be considered only after careful review and correlation of the history and examination.

a. Advanced imaging (i.e., MRI, MRA or CT scans) should be considered for patients displaying definite motor deficits, for patients displaying tinnitus, vertigo, or any CAD symptoms.

b. Advanced imaging may be appropriate if the patients are unresponsive during the initial treatment cycle or symptoms worsen.

c. If MRI is indicated, a consultation with a radiologist is appropriate to determine value of contrast studies in situations of spinal trauma, suspicion or history of cancer, possibility of pathologic fracture with retropulsion onto cord, or suspected infection.

d. Diagnostic ultrasound should be considered in patients with symptoms suggestive of vascular etiologies.

e. Patients with non-dermatomal symptoms who are largely nonresponsive during a single treatment cycle may be candidates for NCV/EMG testing.

IV. Coordination of Care/Specialist Referral

Both initially and throughout care, providers should consider coordination of care and/or referrals.

As applicable, the healthcare record should include evidence of continuity and

coordination of care.

The health care record must include any recommendations to the patient to see his/her Primary Care Provider (PCP), the basis for the recommendation, and evidence of any coordination of care, including but not limited to, any referrals to/from other health care providers.

All communications (written, telephone, etc.) to and from other health care professionals must be included in the clinical record.

As noted in *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain*[2]:

- Patients with moderate to severe initial or recurrent pain may benefit from concurrent pharmacologic interventions directed by a medical physician.

- Patients who fail to demonstrate significant improvement may also benefit from consults or co-management with orthopedists, family physicians, physical medicine and rehab professionals, pain specialists, psychologists, or neurologists, depending on their symptoms and clinical findings.

- Patients with clinical red flags, including progressive neurological deficits, require appropriate referrals.

- Patients who may benefit from practices/modalities not available in the treating chiropractor's office may be referred to the appropriate provider, such as a colleague, or physical therapist, acupuncturist, or massage therapist.[2]

If no clinically significant improvement is documented after approximately 8-12 visits, a different multimodal approach (i.e., different technique, schedule, modalities, etc.) is warranted. If no further improvement is noted after an additional 6-12 visits, assuming appropriate diagnostic studies, including imaging has been obtained, the patient should be referred to a provider of a different discipline or deemed to have reached maximum therapeutic benefit.

A. Specialty Care

Specialty referral should be considered for potential surgical candidates, those for whom the diagnosis is uncertain, or those unresponsive to treatment.

Indications for specialty referral may include the following:

Medical spine specialist:

- Atypical chronic arm pain
- Chronic pain syndrome
- Ruling out inflammatory arthropathy
- Ruling out fibrositis/fibromyalgia
- Ruling out metabolic bone disease (*e.g.*, osteoporosis, Rheumatoid Arthritis, and thyroid conditions)

Surgical spine specialist:

- Chiari malformation
- Progressive or moderately severe neuromotor deficit (*e.g.*, functional muscle weakness, grip strength, shoulder, rotator cuff)
- Persistent neuromotor deficit after four to six weeks of conservative treatment (does not include minor sensory changes or reflex changes)
- Uncontrolled radicular pain with defined lesion on imaging

1. Radicular Pain
   When a patient with unresolved radiating pain reaches a state where additional, objective, measurable improvement cannot reasonably be expected from additional chiropractic treatment, advanced imaging and/or a specialist referral is warranted.

   Similarly, when a treatment plateau in a person's healing process is reached, and the radiating pain is unresolved, advanced imaging and/or a specialist referral is warranted.

V. Diagnoses

Cervical pain is often nonspecific and therefore cannot be attributed to a definite cause. Careful history-taking and physical examination are crucial in attempting to diagnose the underlying cause and in determining the most appropriate pathway to treatment.

The history and examination provide the clinical rationale for appropriate diagnosis and subsequent treatment planning.

For each patient, establish a diagnosis (or diagnoses) based on the history and clinical exam findings.

The diagnosis or diagnostic impression must be reasonable based on the patient’s chief complaint(s), results of clinical exam findings, diagnostic tests, and other available information.

The diagnosis, together with the documented clinical exam findings,

establishes the medical necessity for the patient's subsequent treatment.

The patient's healthcare record must reflect all diagnoses/clinical impressions that coexist at the time of the visit that require or affect patient care. Diagnoses must clearly support the treatment outlined in the treatment plan.

All services/durable medical equipment (DME) provided shall be supported by an appropriate diagnosis.

Any changes in diagnoses must be documented in the healthcare record.

A. Radicular Pain

No changes to above recommendations.

VI. Education

Patient education and managing the patient's expectations are an important part of the treatment of cervical pain. Successful treatment depends on the patient's understanding of the condition and his/her role in recovery and in avoiding re-injury.

Cervical pain often creates new concerns, even fear about their short and long-term health. It is important to address both these concerns and to establish reasonable patient expectations. DCs should educate the patient regarding their condition, and their role and responsibility in achieving a positive outcome, and should help manage patient expectations.

Prior to initiating treatment, it is essential to provide the patient with clear, concise information regarding their condition, the treatment recommended, the anticipated length of treatment, the anticipated outcome, and his/her role in helping to achieve the desired outcome. Additionally, information on the causes of neck pain, pain resolution, usual activity/work, prevention strategies, when to contact the DC, and, as applicable, when referral may be appropriate is also helpful.

At a minimum, education should include these points:

- Cervical pain is a symptom and, in most situations, does not indicate serious disease.
- Patients should take responsibility for, and actively participate in, the rehabilitation process.
- Stress the importance of staying active, and continuing daily activities as normally as possible.
- Emphasize the importance of compliance to the treatment plan.
- Review what symptoms to watch for and when to contact the chiropractic physician.

- Counseling patients regarding activities of daily living, especially those that create insidious ergonomic stress on the cervical spine, i.e., sitting, sleeping, computer work, driving, etc.

A. Radicular Pain

If radiating pain, in addition to the above, education should include:

1. Radicular symptoms are typically slower developing and not the result of an acute insult, therefore resolution is usually more protracted than conditions without radicular symptoms.

2. Advise the patient to inform you if the radiating pain increases or decreases throughout the treatment process.

3. Make clear that workplace ergonomics, dietary changes, and lifestyle changes are critical with radicular symptoms.

VII. Consent

Prior to initiating treatment for any condition, informed consent must be obtained from the patient, and written evidence consent was given (or that the patient declined the treatment) must be included in the healthcare record.

Physicians must keep in mind that informed consent is a process, and involves making sure the patient understands the diagnosis, the proposed treatment, the attendant risks and benefits of the treatment, alternative treatments and their risks and benefits, and the risks of declining treatment.

To assure an appropriate level of patient understanding, the process should involve discussion and should always include an opportunity for the patient to ask questions. The doctor should ask the patient if she or he has any questions and then answer them before proceeding. *A signed written consent is not a valid substitute for, nor does it replace, a discussion between doctor and patient.*

Physicians shall obtain new informed consent when presented with a new condition that was not addressed when the previous informed consent was obtained. (Consent to treat one body part does not necessarily confer that consent to other body parts.)

The patient may withdraw consent at any time.

While HNS recommends the use of the *HNS Informed Consent Form*, any similar form is acceptable, *provided the form clearly states the treatment to be provided and addresses the specific risks discussed with the patient*.

All informed consent forms shall be dated and signed by the patient.

The healthcare record shall include written evidence that informed consent was obtained prior to initiating care and shall reflect that new consent was obtained when the patient presents with a new condition not addressed when the previous consent was obtained.

A. Radicular Pain

If radiating pain, in addition to the above, the patient should be advised of possible complications of untreated radiculopathy, including but not limited to:

- Permanent nerve damage
- Permanent loss of sensation and motor control

VIII. Treatment

At the onset of treatment, the physician should adequately explain to the patient the nature of the patient's condition, the goals of treatment, and the treatment strategy. The physician should provide the patient with estimates of time within which to expect initial improvement, and the time within which to expect maximum therapeutic benefit.

To be consistent with an evidence-based approach, chiropractors should use clinical methods that generally reflect the best available evidence, combined with clinical judgment, experience, and patient preference. Currently, the most robust literature regarding manual therapy supports HVLA techniques and mobilization as well as decompression. Therefore, in the absence of contraindications, these methods are generally recommended.

Although current evidence does not generally support the use of therapeutic modalities in isolation, their use as part of a passive to active approach may be warranted based on clinician judgment and patient preference. Passive care may be initially emphasized, but active care (i.e., exercise) should be increasingly integrated into the treatment plan in order to increase function and return the patient to regular activities of daily living.

A. Treatment Plan

Once the diagnosis has been established based on the history and clinical exam findings, for each episode of cervical pain an individualized treatment plan shall be established.

Each treatment plan shall include objective, measurable and reasonable treatment goals intended to improve a *functional deficit* and reduce pain.

As stated in *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain*[2], general treatment recommendation principles include:

1. Avoid basing treatment recommendations on philosophy, habitual practice procedures, or financial considerations.
2. Frequency and duration of treatment should be consistent with severity of presenting complaint, history, and examination findings.
3. Treatment should include an initial trial of care . . . to determine the success or failure of treatment and the possible need for additional diagnostic tests or referral, include multidisciplinary, multimodal care.
4. In general, there should be diminishing reliance on passive care and a shift toward active care and patient self-reliance.[2]

1. Radicular Pain

No changes to above recommendations.

B. Treatment Plan Requirements

Each treatment plan should:

- Be based on HNS' Philosophy of Care:
  "Treat and Release"; provide care to correct the presenting condition, bring the patient to maximum medical improvement, and discharge the patient from active care with appropriate instructions regarding maintenance/supportive care, self-care, and prevention of future occurrences.

- Include all recommended treatment, including but not limited to, manipulations, modalities/therapies, DME, and home instructions.

- Include recommended activity modifications and home care instructions.

- Include anticipated duration of treatment, including frequency of visits. (The *initial* treatment plan should not exceed approximately 4 weeks or 12 office visits, (whichever occurs first), but may be modified should the objective data from the first re-evaluation indicate the appropriateness of additional care.)

- Include objective measures to evaluate treatment effectiveness.

- Include expected outcomes.

- Reference obstacles to recovery and strategies to overcome them.

- Be modified, as applicable, in response to changes to the patient's condition.

C. Treatment Frequency and Duration

While some patients may respond more quickly, a typical course of treatment for cervical pain is 6 to 12 chiropractic sessions over the course of 2 to 4 weeks.

Although most patients respond within expected time frames, frequency and duration of treatment may be influenced by factors, including but not limited to, comorbidities, yellow flags, and patient compliance to the treatment plan (including recommendations regarding activity modification and home care instructions). Depending on these factors, additional time and treatment may be needed.

> "Definitive evidence on optimal dosages for manual therapies, including spinal manipulation, is currently lacking. However, studies on treatment parameters for similar conditions, such as cervicogenic headaches, suggest better outcomes with more intensive care, typically 3x per week initially."[2]

After each course of treatment, through the use of functional and pain outcome assessments (and other objective measures), the patient should be evaluated regarding the effectiveness of treatment, whether maximum therapeutic benefit has been reached, and to determine the appropriateness of additional chiropractic treatment.

Continuing care should be based on *documented* improvement in *functional* capacity and not only on temporary reduction in subjective complaints.

> "Patients with severe pain (VAS > 7-10) and findings consistent with moderate to severe functional limitations may warrant daily treatment for up to one week to manage pain and improve function."[2]

1. Radicular Pain

If radiating pain, more frequent treatment and a protracted treatment period may be necessary.

D. Patient Compliance

Successful treatment depends, in part, on the patient's understanding of the condition and his/her role in recovery and in avoiding re-injury.

Because the patient's compliance and active participation in the treatment plan is essential to success, the physician should refer or discharge a patient who fails to comply with treatment recommendations.

IX. Initial Course of Treatment

The goals of treatment for cervical pain are to relieve pain, improve function, reduce time away from work, and develop strategies to prevent recurrence.

During the initial phase of treatment of cervical pain, the decision regarding treatment must be made in light of the clinical data presented by the patient, the diagnostic and treatment options available, and the patient's values and expectations.

During the initial course of treatment, DCs should continue to evaluate for the presence or absence of red flags.

The following are treatment considerations for the typical patient presenting with cervical care.

A. Manipulation/Mobilization

HNS agrees with *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain* in that "[m]ultimodal treatment consisting of manual therapy (joint manipulation/mobilization and/or other soft tissue techniques), education, and exercise is recommended" for the treatment of cervical pain.[2]

1. Radicular Pain

If radiating pain, utilization of cervical spinal decompression may be helpful.

2. Cautions and Contraindications

In certain cases, the appropriateness of manipulative procedures must be considered.

> In some complex cases where biomechanical, neurological, or vascular structure or integrity is compromised, the clinician may need to modify or omit the delivery of manipulative procedures. Chiropractic co-management may still be appropriate using a variety of treatments and therapies commonly used by DCs. It is prudent to document the steps taken to minimize the additional risks these conditions may present.[12]

B. Therapeutic Modalities and Therapeutic Procedures

In conjunction with spinal manipulation, therapeutic modalities/procedures may provide therapeutic benefit and/or reduction in pain in the treatment of patients with cervical pain. These include but are not limited to, ice/heat, electrical stimulation, laser treatment, ultrasound treatment, decompression, acupuncture, dry needling, exercise, and transcutaneous electrical nerve stimulation.

As soon as clinically appropriate, consideration should be given to moving from passive therapies to active therapies in an effort to increase function and return the patient to regular activities.

1. Radicular Pain
   No changes to above recommendations.

C. Activity Modification

Patients should be advised to maintain normal activities, as tolerated, during the acute stage of cervical pain and should progressively increase their physical activity levels according to a plan agreed upon between the DC and the patient.

Depending upon neurological involvement, chronicity, and signs of instability, history of head trauma or concussion, activities may need to be modified with cervical pain syndromes.

The physician should discuss proper pillow types/sizes, work ergonomics, looking at cell phones (text neck), use of posture pumps, and carrying book bags and back packs.

1. Radicular Pain
   If radiating pain, activity modification may be necessary.

   Based upon the patient complaints and the specific etiology of the radiculopathy, the physician shall determine if activity modification is necessary, and the extent of the activity modification.

   The patient should avoid activities which cause pain, or worsen radicular symptoms.

   Increased activity should be under the doctor's consent only and should be closely monitored.

X. Re-evaluation

As noted in Section VIII, C (Treatment Frequency and Duration), it is not uncommon for patients with cervical pain to require 6 to 12 chiropractic sessions over the course of 2 to 4 weeks.

A focused re-evaluation shall be performed after an initial course of care (4 weeks or 12 visits, whichever comes first), and if care continues beyond the initial re-evaluation, re-evaluations must be performed every 4 weeks or 12 visits (whichever comes first) until the patient has reached maximum

therapeutic benefit (MTB) or is referred or discharged to maintenance/supportive care.

Outcome assessments for both pain *and function* shall be utilized at each re-evaluation (and throughout the course of care) to 1) measure patient progress towards treatment goals, 2) determine the effectiveness of treatment, 3) determine if maximum therapeutic benefit has been reached, and 4) evaluate the appropriateness of additional treatment.

As part of the re-evaluation, and throughout the treatment, DCs must remain watchful for the appearance of red flags.

Re-evaluation of cervical pain should include the following:

- Function reassessed with repeat (applicable) disability outcome assessment measures
- Pain reassessed with a repeat VAS and appropriate disability outcome assessment measures
- Repeat of positive chiropractic, orthopedic and neurological findings from previous evaluation
- As applicable, recommendations regarding modifications to activities/work

For each re-evaluation, documentation in the healthcare record must include evidence the patient's progress was *objectively measured against the objective goals of the treatment plan.*

The results of each re-evaluation should 1) be clearly explained to the patient, 2) guide clinical decision-making regarding the next steps in care, and 3) be clearly documented in the healthcare record.

1. Radicular Pain
   If radiating pain, in addition to the above, the reevaluation should include an evaluation of the degree of peripheralization by monitoring motor and sensory deficits.

XI. Continuing Course of Treatment

During each office visit, the physician should inquire as to the patient's presenting complaints, perform the treatment called for in the treatment plan and monitor the patient's clinical picture through the use of objective tests such as range of motion, segmental range of motion, presence or absence of spasm or swelling, presence or absence of positive orthopedic findings, and pain assessment.

As the patient's condition improves, the frequency of treatment should gradually decline until the patient reaches the point of discharge. An acute

exacerbation may require more frequent care. The treatment time may be extended due to complicating factors.

If maximum therapeutic benefit (MTB) is not reached during the initial course of care, and provided there is clear evidence that substantive, measurable *functional* gain has occurred, a follow up course of treatment may be warranted. As a general rule, during this phase of care, patients should be encouraged to return to usual activity levels.

The decision regarding continued treatment, and the frequency of it, largely depends on the severity and duration of the condition and whether the patient has reached maximum therapeutic benefit.

A. Maximum Therapeutic Benefit

Maximum Therapeutic Benefit occurs when a patient with an illness or injury reaches a state where additional, objective, measurable improvement cannot reasonably be expected from additional treatment and/or when a treatment plateau in a person's healing process is reached.

HNS refers to (and agrees with) the following included in *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain*:

> The natural history of . . . [neck-pain associated disorders and whiplash-associated disorders] . . . suggests many patients may never fully recover, and exacerbations are common. The goal of care for patients with remaining functional deficits who have reached MTB is to help them become as self-sufficient as possible.[2]

If there is some level of residual symptoms after the patient has reached MTB, the best course of care to control the ongoing pain will fall into one of three categories:

1. No ongoing physician involvement. The patient's residual neck pain can be managed with self-care, *i.e.,* ice, NSAIDS, home-based exercise/stretching, and ADL recommendations.

2. Periodic physician intervention is necessary if the pain exceeds the patient's ability to self-manage. Patient is treated on a PRN basis.

3. Physician intervention is necessary on an ongoing basis to minimize significant pain that develops in the absence of treatment. These patients typically benefit from 1-2 treatments per month with re-evaluations every 6-12 visits. (Supportive care).[2]

1. Radicular Pain

   When a patient with unresolved radiating pain reaches a state where additional, objective, measurable improvement cannot reasonably be expected from additional chiropractic treatment, advanced imaging and/or a specialist referral is warranted.

   Similarly, when a treatment plateau in a person's healing process is reached, and the radiating pain is unresolved, advanced imaging and/or a specialist referral is warranted.

B. Exacerbation/Flare-ups

As indicated in *Best-Practice Recommendations for Chiropractic Management of Patients with Neck Pain*[2]:

> Some patients may require periodic care when they experience exacerbations/flare-ups with recurrence of previously improved functional deficits. Under such circumstances, the clinician should document subjective and objective findings and the capacity to perform daily activities while providing care appropriate to returning them to the MTB baseline. The frequency and duration of such care will depend on the clinical presentation: Some may require an acute care approach, while others may only need a few visits. Periodic reevaluations are warranted after short trials of care, typically 6 to 8 visits. The need for additional care should be predicated on the ability to demonstrate significant positive response and the likelihood of further improvement.[2]

1. Radicular Pain

   Depending upon the specific etiology of the radiating pain, and the severity of the flare-up, the physician may consider a specialist referral for further evaluation.

XII. HNS Performance Expectations

These and all HNS Best Practices represent HNS' performance expectations for all contracted physicians. All HNS Best Practices are posted on the HNS Website under "Clinical Resources."

XIII. Summary

These best practices were created for the HNS physician network (and other key stakeholders) and summarize HNS' practice recommendations and performance expectations for the chiropractic management of adult patients with cervical pain, and with radiating pain. They are intended to improve treatment quality and outcomes, and to promote the delivery of cost-efficient chiropractic care.

In a value-based healthcare environment, there is a vast difference between merely treating someone versus delivering best practices. The essential step for improving clinical outcomes is to provide the most effective care for every patient on every visit. Timely clinical outcomes, cost effective management, and high patient satisfaction are the key metrics to which all physicians should aspire.

XIV. References

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