

1 **Clinical Practice Guideline:** **Spinal Manipulation for Treatment of Neck Pain**

2
3 **Date of Implementation:** **September 18, 2008**

4
5 **Product:** **Specialty**

6
7
8 **POLICY**

9 American Specialty Health – Specialty (ASH) clinical committees have determined that
10 spinal manipulation for treatment of non-acute neck pain is professionally recognized, has
11 been established in the scientific literature as clinically effective, and has a favorable
12 benefit:risk profile.

13
14 ASH clinical committees have determined that spinal manipulation for treatment of acute
15 neck pain is clinically effective, may have a favorable benefit:risk profile and is
16 professionally recognized. The evidence supporting spinal manipulation for acute neck
17 pain is preliminary and not conclusive, a trial period of spinal manipulation for acute neck
18 pain to assess effectiveness for individual patients is supported by the available evidence.

19
20 **PROCESS AND DEFINITIONS**

21 When developing, reviewing, and approving clinical policy, ASH peer-review committees
22 consider whether the technique/procedure:

- 23 • Is established as clinically effective by:
- 24 ○ Scientific information published in an acceptable peer-reviewed clinical
 - 25 science resource, and
 - 26 ○ The consensus opinion of the Evidence Evaluation Committee (EEC) when
 - 27 available;
- 28 • Is professionally recognized by:
- 29 ○ Inclusion in the educational standards accepted by the majority of the
 - 30 professions' educational institutions,
 - 31 ○ Wide acceptance and use of the practice, and
 - 32 ○ Recommendations for use made by healthcare practitioners practicing in
 - 33 the relevant clinical area;
- 34 • Poses a health and safety risk; and
- 35 • Is plausible or implausible
- 36 ○ A belief, theory, or mechanism of health and disease that can be explained
 - 37 within the existing framework of scientific methods, reasoning, and
 - 38 available knowledge is considered plausible.
 - 39 ○ A treatment intervention or diagnostic procedure that requires the existence
 - 40 of forces, mechanisms, or biological processes that are not known to exist
 - 41 within the current framework of scientific methods, reasoning, and
 - 42 available knowledge is considered implausible.

1
2 **Substitution harm (indirect harm):** Compromised clinical outcomes caused by:

- 3 • Utilizing a specific diagnostic or therapeutic procedure when the safety, clinical
4 effectiveness, or diagnostic utility is either unknown or is known to be unsafe,
5 ineffective, or of no diagnostic utility, *instead of* a diagnostic or therapeutic
6 procedure known to be safe, be clinically effective, or to have diagnostic utility; or
7 • The utilization of a diagnostic or therapeutic procedure that is substantially less
8 effective or safe than another procedure with established safety, and clinical
9 effectiveness or utility.

10
11 **Labeling effects (non-specific harm):** The harm that results from identifying in a patient
12 a condition or a finding that is not clinically valid.

13
14 **Safe:** The terms “safe” and “safety,” are used only with specific reference to the absence
15 of direct harm. Direct harm would include any injury to a patient caused by the
16 mechanical, thermal, biological, chemical, pharmacological, electrical,
17 electromagnetic, or psycho-dynamic properties of a diagnostic or therapeutic
18 procedure, and as such, the procedure would be considered unsafe.

19
20 **Direct harm:** Any injury to a patient caused by the mechanical, thermal, biological,
21 chemical, pharmacological, electrical, electromagnetic, or psycho-dynamic
22 properties of a diagnostic or therapeutic procedure.

23
24 **Benefit versus risk profile:** The relative effectiveness or utility of a therapeutic
25 intervention or diagnostic procedure versus its potential for direct harm.

- 26 • Positive (benefits outweigh risks),
27 • Negative (risks outweigh benefits), or
28 • Equivocal (available information is inconclusive).

29
30 **Description/Background**

31 Spinal manipulation is practiced by a variety of health care providers including, but not
32 limited to: chiropractors, osteopaths, physical therapists, and naturopaths. Health care
33 practitioners may differ with respect to the specific spinal manipulation techniques they
34 use, reflecting the diversities in their education, training, and philosophical foundations.
35 Manipulative therapy uses a number of techniques that can be classified as either
36 manipulations or mobilizations. Mobilization techniques include grades I-IV, as well as
37 grade V manipulation which is similar to the HVLA thrust manipulations (Peterson &
38 Bergmann, 2002). The primary objectives of spinal manipulation in the treatment of spine
39 pain are to alleviate musculoskeletal pain, muscle spasm, and functional impairment of the
40 spine. This form of manipulation is a therapeutic procedure characterized by controlled
41 force, leverage, direction, amplitude, and velocity (directional, high velocity, low
42 amplitude thrust) (Peterson & Bergmann, 2002).

1 Evidence and Research

2 In two early meta-analyses, Aker, et al. (1996) concluded that there was preliminary
3 evidence for the effectiveness of combination therapy that included spinal manipulation,
4 and Hurwitz, et al. (1996) suggested some benefit of manipulation over usual care for sub-
5 acute and chronic patients in the short term. Kjellman, et al. (1999) found two (2) high
6 quality studies that were slightly positive, but the evidence was insufficient to make a
7 general conclusion. In a review of reviews, Hoving, et al. (2001) found a dearth of evidence
8 from primary studies on neck pain. They warned that reviews in general require careful
9 consideration because of the disparity in methodology, information, and conclusions.

10
11 Gross, et al. (2004a; 2004b; 2007) published a Cochrane review in 2004; the review was
12 updated in 2007. The meta-analysis showed that manipulation and/or mobilization was no
13 better than placebo, no treatment, or other therapies. However, a combination of
14 manipulation, mobilization, and exercise therapies had a positive effect on chronic
15 mechanical neck pain.

16
17 Bronfort, et al. (2004) conducted a best evidence synthesis (qualitative systematic review).
18 There was preliminary but inconclusive support of manipulation for acute neck pain from
19 one lower quality trial. The evidence for a mix of acute and chronic patients was unclear.
20 There was high quality evidence supporting manipulation for chronic neck pain.
21 Manipulation was superior to general practice in the short term and similar to high tech
22 rehabilitative exercise in the short and long term. The authors concluded that manipulation
23 is a viable option for the treatment of neck pain. They also suggested that future trials
24 should address well defined subgroups and optimal quantity of care.

25
26 Conlin, et al. (2005) found three (3) observational studies in support of spinal manipulation,
27 but noted no randomized trials. Vernon, et al. (2005; 2007) conducted two systematic
28 reviews. They found moderate- to high-quality evidence that manipulation produces
29 clinically important improvement in the short and long term for neck pain patients without
30 headaches or whiplash.

31
32 Hurwitz, et al. (2008) conducted a best evidence synthesis for the Bone and Joint Decade
33 2000 – 2010 Task Force on Neck Pain and Its Associated Disorders. They found
34 manipulation likely to be helpful for neck pain without acute whiplash-associated
35 disorders. They concluded, “Our best evidence synthesis suggests that therapies involving
36 manual therapy and exercise are more effective than alternative strategies for patients with
37 neck pain” (Hurwitz, et al., 2008). The American Physical Therapy Association’s (APTA)
38 guidelines on neck pain recommend cervical mobilization/manipulation with exercise for
39 treatment of neck pain. They also recommend thoracic spine manipulation for reducing

1 pain and disability in patients with neck and neck-related arm pain; however the evidence
2 was considered weak by the APTA (Childs et al., 2008).

3
4 Bronfort et al. (2010) authored a concise summary of the scientific evidence for manual
5 therapies for the management of a variety of conditions, including neck pain. They reported
6 that moderate quality evidence exists for mobilization combined with exercise for
7 treatment of acute whiplash disorders and spinal manipulation/mobilization with exercise
8 for chronic non-specific neck pain. Inconclusive evidence was found for spinal
9 manipulation as a single treatment for neck pain. Clar et al. (2014) in an updated systematic
10 review and extension of the Bronfort et al. (2010) “UK evidence report” noted that
11 evidence continued to be inconclusive but favorable for spinal manipulation/mobilization
12 alone for neck pain. Several studies have supported thoracic spinal manipulation as
13 effective for acute/subacute neck pain (González-Iglesias et al., 2009; Bronfort et al., 2010;
14 Cross et al., 2011; Puenttedura et al., 2011; Lau et al., 2011; Massaracchio et al., 2013;
15 Huisman et al., 2013; Casanova-Méndez et al., 2014).

16
17 Bronfort et al. (2012) completed a randomized trial on spinal manipulation, medication and
18 home exercise with advice for acute and subacute neck pain. They concluded that spinal
19 manipulation was more effective than medication in the short and long term for acute and
20 subacute neck pain; however home exercise and advice resulted in similar outcomes. Evans
21 et al. (2012) evaluated supervised exercise with and without spinal manipulation in a RCT
22 design for treatment of chronic neck pain. Three groups were compared: high dose
23 supervised exercise with manipulation; high dose supervised exercise without
24 manipulation; and low dose home exercise with advice. Results suggested that high dose
25 supervised exercise, with or without manipulation, is more effective than low dose home
26 exercise with advice.

27
28 Gross et al. (2015) updated a 2010 Cochrane review to assess the effects of manipulation
29 or mobilization alone compared with those of an inactive control or another active
30 treatment on pain, function, disability, patient satisfaction, quality of life and global
31 perceived effect in adults experiencing neck pain with or without radicular symptoms and
32 cervicogenic headache (CGH) at immediate- to long-term follow-up. Authors included 51
33 trials (2920 participants, 18 trials of manipulation/mobilization versus control; 34 trials of
34 manipulation/mobilization versus another treatment, 1 trial had two comparisons). Authors
35 suggest that manipulation and mobilization present similar results for every outcome at
36 immediate/short/intermediate-term follow-up. Multiple cervical manipulation sessions
37 may provide better pain relief and functional improvement than certain medications at
38 immediate/intermediate/long-term follow-up. Since the risk of rare but serious adverse
39 events for manipulation exists, further high-quality research focusing on mobilization and
40 comparing mobilization or manipulation versus other treatment options is needed to guide
41 clinicians in their optimal treatment choices.

1 **Safety**

2 The potential risk of a major complication due to spinal manipulation is rare. Cassidy, et
 3 al. (2008) conducted a nine-year inception cohort study with 100 million patient-years of
 4 data. They found no excess risk of chiropractic care over medical care for stroke. They
 5 concluded that the most likely explanation is that stroke patients may seek care from
 6 chiropractors and medical doctors for headache caused by a stroke prodrome in progress.

7
 8 More common complications are transient local muscle and/or joint soreness (Senstad, et
 9 al., 1997; Hurwitz, et al., 2005; Carlesso et al., 2010; Paanalahti et al., 2013; Maiers et al,
 10 2015). This is in sharp contrast to the reported risks associated with medication in general
 11 where 220,000 deaths are reported each year or the significant risks associated with
 12 medications commonly used in the management of spinal pain. It has been reported that
 13 there may be as many as 10,000 to 20,000 fatalities (Lazarou, et al., 1998; Weingart, et al.,
 14 2000) as well as multiple organ systems adversely affected by the commonly used NSAIDS
 15 (Carson & Willett, 1993; Wolfe, et al., 1999). COX-2 inhibitors (Bombardier, et al., 2000),
 16 as well as the relatively benign analgesic acetaminophen, (Whitcomb & Block, 1994) have
 17 also been associated with serious GI, cardiovascular, and hepatic problems at rates that are
 18 orders of magnitude greater than complications due to spinal manipulation. Dabbs and
 19 Lauretti (1995) estimated the risk of mortality is 400 times greater for NSAIDs than for
 20 manipulation in the treatment of neck pain. Rubenstein, et al. (2007) concluded that the
 21 benefits of chiropractic care outweigh the risks for the treatment of neck pain in a multi-
 22 center cohort study. A more detailed discussion including contraindications to
 23 manipulation may be found in Bronfort, et al. (2008).

24 **Conclusion**

25 A) Findings include:

- 26 1) Spinal manipulation in combination with exercise is superior to usual medical
 27 care for nonspecific, chronic neck pain.
- 28 2) Spinal manipulation is similar in effect to high tech or high dose supervised
 29 therapeutic exercise for chronic neck pain.
- 30 3) Manipulation in combination with exercise is recommended for non-acute neck
 31 pain.
- 32 4) The evidence supporting spinal manipulation for acute neck pain is
 33 inconclusive but favorable.
- 34

35 B) The preponderance of evidence supports the use of spinal manipulation for the 36 treatment of neck pain:

- 37 1) A trial of spinal manipulation is recommended for acute neck pain.
- 38 2) Spinal manipulation in combination with exercise is recommended for chronic
 39 neck pain.
- 40 3) Spinal manipulation in combination with exercise has both short-term and long-
 41 term benefit.
- 42

- 1 4) Thoracic spine manipulation has a therapeutic benefit for some patients with
2 neck pain. Thoracic spine manipulation alone or in combination with other
3 interventions is a suitable intervention to try in the treatment of non-specific
4 neck pain.
5
- 6 C) Preventive and maintenance care with spinal manipulation have yet to be justified.
7
- 8 D) Severe adverse events are extremely rare. Most complications are mild and of short
9 duration.
10

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