

# QUALITY AND COST-EFFECTIVENESS OF CHIROPRACTIC CARE



## EDUCATION, CREDENTIALING AND EMPHASIS OF A DOCTOR OF CHIROPRACTIC

Doctors of chiropractic (DCs) are considered primary care professionals for spinal health and well-being. For the license to practice in each state, DCs complete a health sciences-oriented undergraduate education, followed by a minimum of four years of professional education. The credentialing process for DCs begins with the completion of the four-part examination sequence of the National Board of Chiropractic Examiners, which is then followed by the specific requirements of a given State for licensure to practice chiropractic. DCs practice a drug-free, hands-on approach that includes patient examination, diagnosis, care, and referral or co-management when indicated. DCs are known for the well-studied care of spinal manipulation (chiropractic adjustment), an intervention in which they apply a controlled specific force to spinal or extremity joints in order to enhance motion and alignment, and alleviate pain.

DCs have appropriate diagnostic skills and are well-trained to:

- Recommend therapeutic and rehabilitative exercises
- Recommend or apply a wide-range of soft tissue mobilization techniques
- Recommend or apply physical modalities such as heat, laser, ultrasound, electrotherapies
- Provide nutritional, ergonomic, and lifestyle counseling



## BENEFITS OF CHIROPRACTIC

Scientific evidence and clinical experience indicates that chiropractic care offers the following benefits for many patients:

- Reduction of acute, subacute and chronic back and neck pain with improved function
- Reduction of upper and lower extremity pain with improved function
- Relief from certain forms of headache
- Relief from pregnancy-related backache
- Amelioration of many hip, gait and foot problems
- Improvements in general flexibility, stability, balance and coordination
- Improved ability to perform activities of daily living

## RESEARCH

A growing list of randomized controlled trials, observational studies and clinical reports demonstrate that the services provided by doctors of chiropractic are clinically efficacious, cost-effective, safe and highly satisfying to patients.

The Centers for Disease Control and Prevention (CDC), Institute of Medicine (IOM), U.S. Food and Drug Administration (FDA), The Joint Commission and American College of Physicians (ACP), have noted the need of non-pharmacological options, such as chiropractic, as a first-line approach to manage pain.

The ACP developed this guideline to present the evidence and provide clinical recommendations for non-invasive treatment of low back pain: [Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians](#)

A study by RAND updated the randomized controlled trials evidence for these manual procedures and concludes: "There is moderate quality evidence that manipulation and mobilization are likely to reduce pain and improve function for patients with chronic low back pain; manipulation appears to produce a larger effect than mobilization. Both therapies appear safe. Multimodal programs may be a promising option."<sup>1</sup>

*The Lancet* published a three-part series on low back pain, which addresses the issues around low back pain and calls for worldwide recognition of the disability associated with the disorder and the removal of harmful practices. In the second paper, recommendations for the treatment of low back pain are outlined, including spinal manipulation, which is most often performed by a doctor of chiropractic, and the scarcity of research into prevention of low back pain.<sup>2</sup>

# THE FOLLOWING RESEARCH SUPPORTS THE SAFETY, COST-EFFECTIVENESS AND SATISFACTION OF CHIROPRACTIC CARE.

## **U.S. PHYSICIAN RECOMMENDATIONS TO THEIR PATIENTS ABOUT THE USE OF COMPLEMENTARY HEALTH APPROACHES**

In this study, more than half of office-based physicians recommended at least one CHA to their patients. Female physicians recommended every individual CHA at a higher rate than male physicians except for chiropractic and osteopathic manipulation. These findings may enable consumers, physicians, and medical schools to better understand potential differences in use of CHAs with patients. <sup>3</sup>

## **ACCESS TO CHIROPRACTIC CARE AND THE COST OF SPINE CONDITIONS AMONG OLDER ADULTS**

Chiropractic care is a service that operates outside of the conventional medical system and is reimbursed by Medicare. The objective of this study was to examine the extent to which accessibility of chiropractic care affects spending on medical spine care among Medicare beneficiaries. According to the findings, among older adults, access to chiropractic care may reduce medical spending on services for spine conditions. <sup>4</sup>

## **EARLY PREDICTORS OF LUMBAR SPINE SURGERY AFTER OCCUPATIONAL BACK INJURY: RESULTS FROM A PROSPECTIVE STUDY OF WORKERS IN WASHINGTON STATE**

In the U.S., back injuries are the most prevalent occupational injury. Using Disability Risk Identification Study Cohort data, this study examined the early predictors of lumbar spine surgery within three years among Washington State workers, with new workers' compensation temporary total disability claims for back injuries.

Approximately 42.7 percent of workers who first saw a surgeon had surgery, in contrast to only 1.5 percent of those who saw a doctor of chiropractic. There was a very strong association between surgery and first provider seen for the injury even after adjustment for other important variables. <sup>5</sup>

## **COST OF CARE FOR COMMON BACK PAIN CONDITIONS INITIATED WITH CHIROPRACTIC DOCTOR VS MEDICAL DOCTOR/DOCTOR OF OSTEOPATHY AS FIRST PHYSICIAN: EXPERIENCE OF ONE TENNESSEE-BASED GENERAL HEALTH INSURER**

This study analyzed 85,000 Blue Cross Blue Shield beneficiaries in Tennessee over a two-year span and concluded that back pain initiated with a doctor of chiropractic saves 20 to 40 percent on health care costs when compared with care initiated through a medical doctor. <sup>6</sup>

## **DO CHIROPRACTIC PHYSICIAN SERVICES FOR TREATMENT OF LOW BACK AND NECK PAIN IMPROVE THE VALUE OF HEALTH BENEFIT PLANS?**

Niteesh Choudhry, MD, PhD of Harvard Medical School, and Arnold Milstein, MD, Chief Physician at Mercer Health and Benefits and Medical Director of the Pacific Business Group on Health, co-authored the 2009 report, [Do Chiropractic Physician Services for Treatment of Low-Back and Neck Pain Improve the Value of Health Benefit Plans? An Evidence-](#)

[Based Assessment of Incremental Impact on Population Health and Total Healthcare Spending.](#) Using data from high-quality randomized controlled trials, this report combined a rigorous analysis of direct and indirect costs with the evidence concerning clinical effectiveness of chiropractic care. Including both the clinical effectiveness and cost, chiropractic care was far more valuable than medical treatment for neck and low back pain.

These authors found that for neck pain, chiropractic care decreases annual spending by \$302 compared to medical physician care, and that for low back pain, chiropractic increases total annual per patient spending by \$75 compared to medical physician care.

This report concludes that, "when considering effectiveness and cost together, chiropractic physician care for low back and neck pain is highly cost effective, represents a good value in comparison to medical physician care and to widely accepted cost-effectiveness thresholds." Further, the authors state that, "Because we were unable to incorporate savings in drug spending commonly associated with U.S. chiropractic care, our estimate of its comparative cost-effectiveness is likely to be understated."

## **VALUE OF CHIROPRACTIC SERVICES AT AN ON-SITE HEALTH CENTER**

The study concludes that chiropractic services offered at on-site health centers may promote lower utilization of certain health care services, while improving musculoskeletal function. <sup>7</sup>

## **VARIATIONS IN PATTERNS OF UTILIZATION AND CHARGES FOR THE CARE OF HEADACHE IN NORTH CAROLINA, 2000-2009: A STATEWIDE CLAIMS' DATA ANALYSIS**

During 2000-2009, utilization and expenditures for headache treatment increased across all providers. MD care represented the majority of total allowed charges in this study. MD care and DC care, alone or in combination, were overall the least expensive patterns of headache care. Risk-adjusted charges were significantly less for DC-only care. <sup>8</sup>

## **INTEGRATED CHRONIC PAIN PROGRAM (ICPP): SUMMARY OF RESULTS**

Advanced Medicine Integration Group (AMI) of Rhode Island's ongoing Integrated Chronic Pain Program reduced per member per year total average medical costs by 27 percent, decreased the average number of ER visits by 61 percent, lowered the number of average total prescriptions by 63 percent and reduced the average number of opioid scripts by 86 percent for enrolled Community of Care (CoC) Medicaid members with chronic pain conditions.

Client validated, these reductions exceeded by 2 to 3 times those reported for a non-enrolled control group of conventionally managed CoC chronic pain patients. Every \$1 spent on CAM services, including chiropractic, and AMI program fees resulted in \$2.41 of medical expense savings. <sup>9</sup>

### **PAYMENT FOR LUMBAR FUSION SURGERY**

Effective January 1, 2018 in Ohio, reimbursement for lumbar fusion surgery for treatment of allowed conditions in a claim resulting from an allowed industrial injury or occupational disease, shall be limited to claims in which current best medical practices as implemented by this rule are followed. Authorization for lumbar fusion shall be considered only in cases in which the injured worker has had at least 60 days of conservative care, which may include chiropractic care.<sup>10</sup>

### **COST-EFFECTIVENESS OF MEDICAL AND CHIROPRACTIC CARE FOR ACUTE AND CHRONIC LOW BACK PAIN**

Chiropractic care appeared relatively cost-effective for the treatment of chronic low back pain. Chiropractic and medical care performed comparably for acute patients. Practice-based clinical outcomes were consistent with systematic reviews of spinal manipulation efficacy: manipulation-based therapy is at least as good as and, in some cases, better than other therapies. This evidence can guide physicians, payers and policy makers in evaluating chiropractic as a treatment option for low back pain.<sup>11</sup>

### **ASSOCIATION BETWEEN UTILIZATION OF CHIROPRACTIC SERVICES FOR TREATMENT OF LOW BACK PAIN AND USE OF PRESCRIPTION OPIOIDS**

Among New Hampshire adults with office visits for non-cancer low back pain, the likelihood of filling a prescription for an opioid analgesic was significantly lower for recipients of services delivered by doctors of chiropractic compared with non-recipients. The underlying cause of this correlation remains unknown, indicating the need for further investigation.<sup>12</sup>

### **INFLUENCE OF INITIAL PROVIDER ON HEALTH CARE UTILIZATION IN PATIENTS SEEKING CARE FOR NECK PAIN**

Initially consulting with a nonpharmacological provider may decrease opioid exposure (PT and DC) over the next year and also decrease advanced imaging and injections (DC only). These data provide an initial indication of how following recent practice guidelines may influence health care utilization in patients with a new episode of neck pain.<sup>13</sup>

### **ASSOCIATION BETWEEN UTILIZATION OF CHIROPRACTIC SERVICES FOR TREATMENT OF LOW BACK PAIN AND RISK OF ADVERSE DRUG EVENTS**

Among New Hampshire adults with office visits for low back pain, the adjusted likelihood of an adverse drug event (ADE) was significantly lower for recipients of chiropractic services as compared to non-recipients. No causal relationship was established between utilization of chiropractic care and risk of an ADE.<sup>14</sup>

### **HEALTH MAINTENANCE CARE IN WORK-RELATED LOW BACK PAIN AND ITS ASSOCIATION WITH DISABILITY RECURRENCE**

In work-related non-specific low back pain, the use of health maintenance care provided by physical therapist or physician services was associated with a higher disability recurrence than in chiropractic services or no treatment.<sup>15</sup>

### **CHIROPRACTIC INTEGRATED CARE PATHWAY FOR LOW BACK PAIN IN VETERANS: RESULTS OF A DELPHI CONSENSUS PROCESS**

The modified Delphi process was conducted in July to December 2016. Most (93 percent) seed statements achieved consensus during the first round, with all statements reaching consensus after 2 rounds. The final care pathway addressed the topics of informed consent, clinical evaluation including history and examination, screening for red flags, documentation, diagnostic imaging, patient-reported outcomes, adverse event reporting, chiropractic treatment frequency and duration standards, tailored approaches to chiropractic care in veteran populations, and clinical presentation of common mental health conditions. Care algorithms outlined chiropractic case management and interprofessional collaboration and referrals between doctors of chiropractic and primary care and mental health providers. Conclusion: This study offers an integrative care pathway that includes chiropractic care for veterans with low back pain.<sup>16</sup>

### **OPIOID USE AMONG VETERANS OF RECENT WARS RECEIVING VETERANS AFFAIRS CHIROPRACTIC CARE**

Nearly one-third of OEF/OIF/OND veterans receiving VA chiropractic services also received an opioid prescription, yet the frequency of opioid prescriptions was lower in each of the three 30-day time frames assessed after the index chiropractic visit than before. Factors associated with an increased likelihood of receiving an opioid around the time of a chiropractic visit included moderate to severe pain, diagnoses of PTSD and/or depression, and current smoking.<sup>17</sup>

### **ASSOCIATION OF SPINAL MANIPULATIVE THERAPY WITH CLINICAL BENEFIT AND HARM FOR ACUTE LOW BACK PAIN: SYSTEMATIC REVIEW AND META-ANALYSIS**

In a 2017 study published in the *Journal of the American Medical Association*, Paige et al., completed a systematic review of randomized controlled trials (RCTs) on the effectiveness and harms of Spinal Manipulative Therapy (SMT) for acute (6 weeks) low back pain. Of 26 eligible studies identified, 15 RCTs (1711 patients) provided moderate-quality evidence that SMT has a statistically significant association with improvements in pain, and twelve RCTs (1381 patients) produced moderate-quality evidence that SMT has a statistically significant association with improvements in function. The RCTs represented studies of adults with low back pain treated in ambulatory settings with spinal manipulative therapy compared with sham or alternative treatments, and that measured pain or function outcomes for up to 6 weeks. The authors conclude that among patients with acute low back pain, spinal manipulative therapy was associated with modest improvements in pain and function at up to 6 weeks, with transient minor musculoskeletal harms.<sup>18</sup>

#### **MANIPULATION AND MOBILIZATION FOR NECK PAIN CONTRASTED AGAINST AN INACTIVE CONTROL OR ANOTHER ACTIVE TREATMENT**

Gross et al., in a review of randomized controlled trials found that for acute to subacute neck pain, cervical spine manipulation was more effective than various combinations of prescription medications for improving pain and functional improvement.<sup>19</sup>

#### **SPINAL MANIPULATION, MEDICATION, OR HOME EXERCISE WITH ADVICE FOR ACUTE AND SUBACUTE NECK PAIN: A RANDOMIZED TRIAL**

Bronfort et al., in a randomized controlled trial funded by the National Institute of Health's National Center for Complementary and Alternative Medicine, undertook a study of the effectiveness of different treatment approaches for mechanical neck pain. The 272 study participants were divided into three groups, one receiving spinal manipulative therapy from a doctor of chiropractic, a group receiving pain medication (over-the-counter pain relievers, narcotics and muscle relaxants), and another received exercise recommendations. After 12 weeks, approximately 57 percent of those under chiropractic treatment, and 48 percent of the subjects that exercised reported at least a 75 percent reduction in pain, compared to 33 percent of the subjects in the medication group.<sup>20</sup>

#### **UPPER CERVICAL AND UPPER THORACIC THRUST MANIPULATION VERSUS NONTHRUST MOBILIZATION IN PATIENTS WITH MECHANICAL NECK PAIN: A MULTICENTER RANDOMIZED CLINICAL TRIAL**

In a study of patients with mechanical neck pain randomized to receive a spinal manipulation compared to non-thrust mobilization, the results indicated that the participants, "...receiving a combination of upper cervical and upper thoracic spinal manipulation experienced significantly greater reductions in disability (50.5 percent) and pain (58.5 percent) than those of 12 the non-thrust mobilization group following treatment." The study further concluded that the spinal manipulation group had significantly greater improvement in both passive upper cervical (C1-2) rotation range of motion and motor performance.<sup>21</sup>

#### **DOSE RESPONSE AND EFFICACY OF SPINAL MANIPULATION FOR CHRONIC CERVICOGENIC HEADACHE: A PILOT RANDOMIZED CONTROLLED TRIAL**

Haas et al. in a randomized study looking at pain intensity, and frequency of cervicogenic headache found spinal manual therapy (SMT) to be more effective at reducing pain intensity and disability when compared to light massage. The effects were greater after 16 treatment sessions than after 8 sessions. The mean number of cervicogenic headaches was reduced for the SMT group, with improvement maintained at a 24 week follow-up.<sup>22</sup>

#### **A COMPARISON OF SPINAL MANIPULATION METHODS AND USUAL MEDICAL CARE FOR ACUTE AND SUB-ACUTE LOW BACK PAIN: A RANDOMIZED CLINICAL TRIAL**

A randomized controlled trial with six-month follow-up reports that 94 percent of manual-thrust manipulation recipients under chiropractic care had a 30 percent reduction in low back pain at week four while only 56 percent of medical care recipients had a 30 percent reduction in low back pain at week four. This represents a 38 percent (94% - 56%) increase in effectiveness by seeing a doctor of chiropractic first. The study also determined that patients are best served when informed of non-pharmacological therapies for low back pain before electing riskier, less effective treatments. Manual-thrust manipulation, performed by doctors of chiropractic, achieves a greater short-term reduction in pain compared with common medical treatments.<sup>23</sup>

#### **MANUAL THERAPY, PHYSICAL THERAPY, OR CONTINUED CARE BY A GENERAL PRACTITIONER FOR PATIENTS WITH NECK PAIN. A RANDOMIZED, CONTROLLED TRIAL**

"In our randomized, controlled trial, we compared the effectiveness of manual therapy, physical therapy, and continued care by a general practitioner in patients with nonspecific neck pain. The success rate at seven weeks was twice as high for the manual therapy group (68.3 percent) as for the continued care group (general practitioner). Manual therapy scored better than physical therapy on all outcome measures. Patients receiving manual therapy had fewer absences from work than patients receiving physical therapy or continued care, and manual therapy and physical therapy each resulted in statistically significant less analgesic use than continued care."<sup>24</sup>

## FOOTNOTES

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1. Coulter I, Crawford C, Hurwitz E, et al. [Manipulation and Mobilization for Treating Chronic Low Back Pain: A Systematic Review and Meta-Analysis](#). *Spine Journal* (2018)
2. Foster et al. [Prevention and treatment of low back pain: evidence, challenges, and promising directions](#). *The Lancet* (2018)
3. Stussman, B. J., et al. (2019). [U.S. Physician Recommendations to Their Patients About the Use of Complementary Health Approaches](#). *The Journal of Alternative and Complementary Medicine*. doi: 10.1089/acm.2019.0303
4. Davis MA, Yakusheva O, Liu H, et al. [Access to chiropractic care and the cost of spine conditions among older adults](#). *American Journal of Managed Care*. 2019;25(8):e230-e236.
5. Keeney et al. (2013) *Spine Journal*
6. Lilledahl et al. (2010) *Journal of Manipulative and Physiological Therapeutics*
7. Krause et al. (2012) *Journal of Occupational and Environmental Medicine*
8. Hurwitz et al. (2016) *Journal of Manipulative and Physiological Therapeutics*.
7. AMI Group, L.P. (2016)
9. Bureau of Workers' Compensation Ohio. (2018)
10. Haas et al. (2005) *Journal of Manipulative and Physiological Therapeutics*.
11. Whedon et al. (2018) *Journal of Alternative and Complementary Medicine*
12. [Influence of Initial Provider on Health Care Utilization in Patients Seeking Care for Neck Pain](#). Horn, Maggie E. et al. *Mayo Clinic Proceedings: Innovations, Quality & Outcomes*, Volume 1, Issue 3, 226 - 233.
13. Whedon et al. (2018) *Journal of Manipulative & Physiological Therapeutics*
14. Cifuentes et al. (2011) *Journal of Occupational and Environmental Medicine*
15. Lisi et al. (2018) *Journal of Manipulative and Physiological Therapeutics*
16. Lisi, A. et al (2018). *Opioid Use Among Veterans of Recent Wars Receiving Veterans Affairs Chiropractic Care*. *American Academy of Pain Medicine*, 19(Suppl\_1). doi:10.1093/pm/pny114
17. Paige et al. (2017) *Journal of the American Medical Association*
18. Gross et al. (2015) *Cochrane Database Systemic Review*
19. Bronfort et al. (2012) *Annals of Internal Medicine*
20. Dunning et al. (2012) *Journal of Orthopaedic and Sports Physical Therapy*
21. Dunning et al. (2016) *BioMed Central Musculoskeletal Disorders*
22. Haas et al. (2010) *Spine Journal*
23. Schneider et al. (2015) *Spine Journal*
24. Hoving et al. (2002) *Annals of Internal Medicine*