Chiropractic Research

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Important Points From This Report

- Low back pain (LBP) affects at least 80% of us some time in our lives, perhaps 20-30% of us at any given time.
- Strain and sprain injuries required almost 110,000 days in the hospital, the second greatest for any condition.
- Musculoskeletal injuries accounted for 68 percent of all limited duty dispositions (profiles or limited duty slips) and amount to an estimated 25 million limited duty days per year.
- Duke Medical Center researchers has found that patients suffering from back pain consume more than $90 billion annually in health-care expenses, with approximately $26 billion of that amount directly attributable to treating the back pain.
- A common misconception often cited is that 90% of back pain will go away on its own without treatment. However, a recent review published in the European Spine Journal in 2003, showed that the reported proportion of patients who still experienced pain after 12 months was 62% (range, 42-75%), dispelling the popular notion that up to 90% of low back pain episodes resolve spontaneously within 1 month.
- There is also a large number of Americans who, after trying many standard treatments, are still left suffering with serious back pain. For these patients have tried exercises, drugs, and/or injections, and are still suffering, and are now being told they need surgery, then chiropractic can be a viable option before surgery.
- Spinal manipulation is a cost effective addition to "best care" for back pain in general practice. *Manipulation alone probably gives better value for money than manipulation followed by exercise.
- Chiropractic care appeared relatively cost-effective for the treatment of chronic LBP. 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.
- The apparent safety of spinal manipulation, especially when compared with other "medically accepted" treatments for Lumbar Disc Herniation, should stimulate its use in the conservative treatment plan of LDH.
- Chiropractic was more beneficial than placebo in reducing pain and more beneficial than either placebo or muscle relaxants in reducing Global Impression of Severity Scale (GIS).
- Patients with chronic low-back pain treated by chiropractors showed greater improvement and satisfaction at one month than patients treated by family physicians. Satisfaction scores were higher for chiropractic patients. A higher proportion of chiropractic patients (56 percent vs. 13 percent) reported that their low-back pain was better or much better, whereas nearly one-third of medical patients reported their low-back pain was worse or much worse.
- The clinical outcomes measures showed that manual therapy resulted in faster recovery than physiotherapy and general practitioner care. Moreover, total costs of the manual therapy-treated patients were about one-third of the costs of physiotherapy or general practitioner care.
- “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.”
- A study by Miron Stano, Ph.D., reported in the June 1993 Journal of Manipulative and Physiological Therapeutics involved 395,641 patients with neuromusculoskeletal conditions. Results over a two-year period showed that patients who received chiropractic care incurred significantly lower health care costs than did patients treated solely by medical or osteopathic physicians.

Injury: The Military's Modern Epidemic

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The ***No. 1 health threat to the U.S. armed forces readiness are musculoskeletal Injuries***. These injuries are a burden to the U.S. armed forces in that they degrade health, fitness, morale and military operational effectiveness of service members and these injury and it represents the greatest threat to our military readiness. They also consume a large portion of our limited healthcare dollars for treatment, rehabilitation and disability compensation.

So how common is the injury problem in the military?

Here are some staggering Department of Defense statistics from 2007:

•Injuries accounted for more hospitalizations than any other adverse health condition except mental disorders; however, injuries were the leading cause of outpatient clinical visits.

•There were ***2.1 million injury-related medical visits affecting 900,000 service members***.

•Strain and sprain injuries required almost 110,000 days in the hospital, the second greatest for any condition.

•Twice as many service members received medical care for injuries than for any other category of conditions.

•Musculoskeletal injuries accounted for 68 percent of all limited duty dispositions (profiles or limited duty slips) and amount to an estimated 25 million limited duty days per year.

The injury rate for the Army alone is 2,500 reported injuries for every 1,000 Soldiers. Think about that statistic for a moment and realize that this means that every Soldier can expect to go to sick call more than twice a year for a musculoskeletal injury. Injuries affecting the lower back, knee, ankle and shoulders account for most of the visits and are among the top seven diagnoses across the armed forces. Think again if you believe these numbers are inflated due to the Iraq and Afghanistan conflicts. These numbers are all taken from the garrison, not the deployed, environment. If the definition for an epidemic is "extremely prevalent, widespread, affecting many persons at the same time," then the military and, specifically, the Army has an epidemic of injuries. Referring to our injury problem as an epidemic is not new. Retired Col. Bruce Jones, M.D., a pioneer in the study of military injury and prevention, wrote a technical report in 1996 titled "Injuries in the Military: A Hidden Epidemic." The conclusion was "injuries have greater impact on the health and readiness of the U.S. armed forces than any other category of medical complaint during peacetime and combat." The most common type of injury identified was overuse related to physical training (PT) and sports that mostly affected the knee and back. Unfortunately, more than a decade later, the trend continues. According to recent data, more than 50 percent of our injuries in the Army are a direct result of strenuous load- and impact-bearing exercise caused by PT and sports-related activities. More Leaders in the military must appreciate the magnitude and scope of the problem, as well as understand their role in prevention. The efforts by both military and civilian agencies to understand the injury process and provide solutions have been ongoing for the last 25 years. As a result, we now have numerous scientific studies that tell us where all the injuries are coming from, as well as who is most at risk. A recent technical report developed for the armed forces by the Joint Services Physical Training Injury Prevention Work Group (JSPTIPWG) examined the available scientific data and presented intervention strategies that can potentially reduce PT and overuse injuries by 25 to 50 percent when implemented. All the information in the world, however, will do nothing to reduce injury's threat to readiness unless action is taken. Every member of our armed forces, especially Leaders, must be educated on the basics of injury prevention. This is because unit Leaders, not the medical community, are in the position to effectively implement and enforce change.

Where can a Leader find injury prevention information? Fortunately, the JSPTIPWG technical manual "Injury Prevention Through Leadership" is available as an interactive online video course at https://crc.learn.army.mil. This short course will introduce the viewer to the causes and extent of injury in the armed forces and then offer practical, evidence-based strategies. It can also be the foundation for proactive Leaders to start injury prevention programs in their units.

The No. 1 threat to readiness is identified and can no longer remain hidden. Just as George Washington required basic sanitation to prevent disease, all Leaders must learn and implement basic injury prevention if we are to reduce that threat. It will take time and effort, but the result will be Soldiers who remain Army Safe and Army Strong.

DID YOU KNOW?

Across the **U.S. Armed Forces**, more than **25 million limited-duty days occur annually due to injuries**, with physical training/sports being a top injury category. Leaders are in the best position to prevent injuries. The one-hour, interactive, online "Injury Prevention Through Leadership" course provides Leaders with concise, evidence-based information and guidance they can use to prevent many injuries. The course also teaches practical strategies to help Soldiers meet their fitness goals. To access the course, visit Combat Readiness University II at https://crc.learn.army.mil. Log in with your AKO ID and password, select the Courses tab, open the Joint Forces Safety Training folder and enroll today.

Back Pain Stats

Low back pain (LBP) affects at least **80%** of us some time in our lives, perhaps 20-30% of us at any given time. It is usually recurrent, and subsequent episodes tend to increase in severity. It is common in individuals who lead sedentary lives and in those who engage in manual labor. It can occur at any age but is most prevalent during the third to sixth decades of life.

COSTS: A team of Duke Medical Center researchers has found that patients suffering from back pain consume more than ***$90 billion annually in health-care expenses***, with approximately $26 billion of that amount directly attributable to treating the back pain. Tremendous costs are associated with LBP, including lost productivity and income from work, the expense of medical, rehabilitation, and surgical interventions, and the costs of disabling pain and limited daily function.

Back pain is second only to upper respiratory conditions as the stated cause of work loss. The costs for treatment and compensation for LBP in industry may be greater than the total amount spent on all other industrial injuries combined. However, most of the costs, perhaps 80%, are incurred by about 20% of the LBP patients who then become disabled.

COMMON MISCONCEPTION: A common misconception often cited is that 90% of back pain will go away on its own without treatment. However, a recent review published in the European Spine Journal in 2003, showed that the reported proportion of patients who still experienced pain after 12 months was 62% (range, 42-75%), dispelling the popular notion that up to 90% of low back pain episodes resolve spontaneously within 1 month.

There is also a large number of Americans who, after trying many standard treatments, are still left suffering with serious back pain. For these patients have tried exercises, drugs, and/or injections, and are still suffering, and are now being told they need surgery, then chiropractic can be a viable option before surgery.

Why Health Care Costs for LBP Are So High

Initiating care with an MD for back pain results in much higher health care costs than going to a DC, says study.

By Peter W. Crownfield, Executive Editor

With the much-touted **Choudhry/Milstein study** already putting insurers and other health care stakeholders on notice that chiropractic care for back pain "is highly cost-effective [and] represents a good value in comparison to medical physician care and to widely accepted cost-effectiveness thresholds," along comes "Cost of Care for Common Back Pain Conditions Initiated With Chiropractic Doctor vs. Medical Doctor / Doctor of Osteopathy as First Physician."

Published in the December 2010 issue of *JMPT*, the study, a retrospective claims analysis of Blue Cross Blue Shield of Tennessee's intermediate and large group fully insured population, determined that paid costs for episodes of care were 40 percent lower when care was initiated with a doctor of chiropractic compared to an allopathic provider. Even when risk-adjusting each patient's costs to account for severity, paid costs for chiropractic patients were 20 percent lower than medical patients treated for low back pain.

"Our results support a growing body of evidence that chiropractic treatment of low back pain is less expensive than traditional medical care," stated the study authors in their conclusion. "We found that episode cost of care for LBP initiated with a DC is less expensive than care initiated through an MD. ... Our results suggest that insurance companies that restrict access to chiropractic care for LBP may, inadvertently, be paying more for care than they would if they removed these restrictions."

In their study, the researchers identified Blue Cross Blue Shield of Tennessee members with an LBP claim based on the presence of any of the following ***ICD-9* codes** on a paid claim: 722 Intervertebral disk disorders, 724 Other and unspecified disorders of back, 729 Other disorders of soft tissues, 739 Nonallopathic lesions not elsewhere classified, 846 Sprains and strains of sacroiliac region, and 847 Sprains and strains of other and unspecified parts of back. Of more than 650,000 members during the two-year period analyzed (Oct. 1, 2004 - Sept. 30, 2006), 85,402 had been diagnosed using one of the above codes.

Plan members had open access to MDs and DCs through self-referral (ER visits were categorized as MD-initiated care), without any limit to the number of visits. Co-pays did not vary between provider type.

Total episode costs for **each episode of LBP** were determined by calculating the cost paid by the insurer for all services provided during the episode by the same and other providers. Costs per episode were $452.33 (paid) for patients initiating care with a chiropractor and $1,037.04 for patients initiating care with a medical provider; risk-adjusted paid costs were $532.54 (DC) vs. $661.10 (MD).

"As doctors of chiropractic, we know firsthand that our care often helps patients avoid or reduce more costly interventions such as drugs and surgery. This study supports what we see in our practices every day," said ACA President Rick McMichael, DC, in an ACA release reporting on the study findings. "It also demonstrates the value of chiropractic care at a critical time, when our nation is attempting to reform its health care system and contain runaway costs."

CAM for Back and Neck Pain: Review of the Research

Massive report reviews the research database relative to chiropractic, other therapies.

A massive research review and analysis conducted by the University of Ottawa Evidence-Based Practice Center, as commissioned by the U.S. Agency for Healthcare Research and Quality, and "summarized" in nearly 700 pages, provides insight into the clinical efficacy and cost-effectiveness of chiropractic, acupuncture and massage therapy. The report relies on data from 265 randomized, controlled trials and five non-RCTs involving CAM use by adults with back, neck and/or thoracic pain.

For the sake of brevity, we present excerpts from the results section of the report's structured abstract only; access the report in its entirety at **www.ahrq.gov/down loads/pub/evidence/pdf/backpaincam/backcam2.pdf**.

Chiropractic: "For both low back and neck pain, manipulation was significantly better than placebo or no treatment in reducing pain immediately or short-term after the end of treatment. Manipulation was also better than acupuncture in improving pain and function in chronic nonspecific low back pain. Results from studies comparing manipulation to massage, medication, or physiotherapy were inconsistent, in favor of manipulation or indicating no significant difference."

"Mobilization was superior to no treatment but not different from placebo in reducing low back pain or spinal flexibility after the treatment. Mobilization was better than physiotherapy in reducing low back pain ... and disability (Oswestry). ... In subjects with acute or subacute neck pain, mobilization compared to placebo significantly reduced neck pain. Mobilization and placebo did not differ in subjects with chronic neck pain."

Massage: "Massage was superior to placebo or no treatment in reducing pain and disability only amongst subjects with acute/sub-acute low back pain. Massage was also significantly better than physical therapy in improving back pain ... or disability. For subjects with neck pain, massage was better than no treatment, placebo, or exercise in improving pain or disability, but not neck flexibility. "

Acupuncture: "Acupuncture for chronic nonspecific low back pain was associated with significantly lower pain intensity than placebo, but only immediately post-treatment ... However, acupuncture was not different from placebo in post-treatment disability, pain medication intake, or global improvement in chronic nonspecific low back pain. Acupuncture did not differ from sham-acupuncture in reducing chronic non-specific neck pain immediately after treatment. ... Acupuncture was superior to no treatment in improving pain intensity ... disability (PDI), functioning (HFAQ), well-being (SF-36), and range of mobility (extension, flexion), immediately after the treatment. In general, trials that applied sham-acupuncture tended to produce negative results (i.e., statistically non-significant) compared to trials that applied other types of placebo (e.g., TENS, medication, laser)."

What is the Natural History for Lower Back Pain?

Craig Liebenson, D.C.

We have all heard the statistics that say 85% of patients are better in 6 weeks. Is this universally advertised short term outcome true? What do we mean by better? If our goal is to improve the quality of care for back pain patients then we first need to establish benchmark outcomes of recovery.

If improvement is the goal then 90% of patients are improving after only 3 weeks. But, if asymptomatic is the goal then only 46% reached this goal after 7 weeks. If not having any activity limitations due to pain is the goal, as AHCPR suggests, then only ***38% have achieved this goal by 7 weeks***.

A new outcome question to ask patients has been proposed by Cherkin and Deyo. They suggest asking "If you spent the rest of your life with the symptoms of the last 24 hours how satisfied would you be?" It turns out that 1/3 of patients are satisfied after 1 week. But, that 1/3 are dissatisfied after 7 weeks. Offering overly optimistic forecasts for recovery risks disappointed 1/3 of our patients.

Two recent papers, one by Cherkin, et al and one by Van Korff and Saunders both suggest that the natural history is not so rosey for low back disorders as was believed. In fact, we should evaluate outcomes relative to recovery from the acute episode as well as recurrences one year later. Key outcomes include pain intensity (VAS), activity limitations (Oswestry, Roland-Morris, Neck Disability Index), use of pain medication, time off work, and utilization or cost of health care services. Measuring these outcomes on a regular basis will allow us to defend appropriate care and establish a universal database for chiropractic care. James Weinstein, DO the chief editor of Spine said at our chiropractic centeniel in Washington, D.C. that research in the future will be done not by randomized, controlled clinical trials, but by hundreds of clinics capturing outcomes on patients classified into meaningful groups.

A key classifications is sciatica patients. Sciatica patients have a worse prognosis than mechanical back pain patients. Which other patients are at greater risk of prolonged recovery or recurrences? Patients with job dissatisfaction, depression, and poor self-rated health.

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RESEARCH STUDIES ON CHIROPRACTIC EFFECTIVENESS

Following are examples of many well know studies on the effectiveness of chiropractic care.

In recent years, numerous independent researchers and various government agencies have conducted studies which focus on the efficacy, appropriateness and cost-effectiveness of chiropractic treatment. Several of these important studies are listed below.

Chiropractic research: Deliverance of the chiropractor

Chiropractic research has made exceptional strides within a short period of time to document much of what the chiropractic profession has performed in words and deeds over the past century. In 1975, the National Institute of Neurological Diseases and Stroke (NINDS) concluded that insufficient research existed to either support or refute spinal manipulation for back pain and other musculoskeletal disorders. Nearly 30 years later, we now can review with great satisfaction how back pain management has been assessed by government agencies in the United States, Canada, Great Britain, Sweden, Denmark, Australia and New Zealand.

All of these reports are highly positive with respect to spinal manipulation.

And, in just the last 20 years, at least 73 randomized clinical trials involving spinal manipulation have made their appearance in the English literature. Even more remarkable is the fact that the majority of these have been published in general medical and orthopedic journals.

Other major accomplishments?

1. The appearance of a variety of favorable systematic literature reviews;
2. The establishment of the first federally funded chiropractic Center for Excellence at Palmer University by the National Institute of Health's National Center for Complementary and Alternative Medicine in 1997;
3. The publication of the Headache Report by Duke University in 2001;
4. The securing of over $10M in federal grants within the past decade when in 1991 this accomplishment was considered to be unlikely;
5. The establishment of chiropractic services within the military; and
6. The historic signing of Public Law 107-135 on January 23, 2003, mandating the establishment of a permanent chiropractic health benefit within the Department of Veterans Affairs healthcare system.

Despite these achievements, chiropractic has not yet achieved the status and use that it deserves. For example, a recent report on workers' compensation claimants from Florida pointed out that for industrial musculoskeletal injuries, chiropractic care demonstrates lower costs and shorter durations in both reaching maximal medical improvement and return to work.

However, the frequency of specific musculoskeletal-related cases treated by chiropractors in 1999 was only 25 percent of the level seen in 1994 (the date that managed care was introduced into the Florida workers' compensation system).

Despite the wealth of its research information, it has been necessary time and again for the chiropractic profession to seek both legislation and legal recourse to achieve its earned recognition with the most meticulous of research, ironic in light of a recent report in the Journal of Manipulative and Physiological Therapeutics which shows that chiropractic practices in at least one locale can demonstrate that a higher percentage of its treatments are evidence-based than found in medical interventions. Yet we still endure the opinions of past editors of such trusted sources as The New England Journal of Medicine who have debunked alternative medicine as "unscientific."

Importance of research

The Department of Defense mandate, the Veterans Administration legislation, installation of outstanding practitioners on Capitol Hill, the Bethesda Naval Center and Walter Reed Hospital would never have happened in the United States without the research efforts having been published in peer-reviewed journals. On a worldwide basis, the issuance of eight positive government guidelines and recent legislation recognizing chiropractic in France likewise could not have occurred without ongoing research programs.

In today's environment, the chiropractic physician has the responsibility to be able to understand and utilize chiropractic research, because he or she must:

• Be able to explain the strengths and weaknesses of studies to insurers, potential collaborators in other health professions and particularly to the patient; and

• Rely upon research methods (at the case study level) in order to be able to maintain patient records which do not become a liability in cases of litigation — whether involving direct malpractice lawsuits or in offering testimony for other purposes.

As evidence-based medicine becomes more the rule in today's healthcare, the recent Medicare legislation and any other provisions of third-party reimbursement that can offer anything near equitable allocations for chiropractic services will become primarily dependent upon the research information that can be generated.

Such data, for example, must be able to distinguish chiropractic intervention from that provided by other manual therapists — such as osteopaths, physical therapists, manual therapists, physiatrists, bonesetters, orthopedists and massage therapists. Clearly, this has a direct implication in being able to identify, preserve, refine and develop chiropractic practice in the future.

It is apparent, also, that only research can guide the physician to determine the optimal forms of interventions, lengths and frequencies of treatment for specific conditions.

Future trends

To date, little research has been done of the nearly 300 chiropractic techniques used. In order to achieve parity reimbursements for medications, the effects of various frequency distributions of at least the more commonly applied chiropractic techniques will have to be studied in the near future.

Research also needs to be done on the importance of stress and the hormonal system. Already we have witnessed changes in cortisol levels following either massage or manipulation. The same was proposed for prostaglandins immediately following side-posture adjustments.

Since hormones play the role of chemical messenger and elicit an enormous range of physiological responses in and of themselves, their alterations following spinal manipulation may in fact provide an essential bridge for understanding the systemic changes which have been proposed for decades to be a consequence of spinal manipulation.

What would the future trends in chiropractic research indicate? In clinical research, we would assume that there will be a turn toward practice-based research in the actual setting of the doctor's office, together with renewed interest in case studies.

In terms of basic research, we should be able to understand not only at the tissue and cellular level but at the molecular as well in more precise terms what accompanies what chiropractors have defined as the subluxation, as well as the effects of manipulation.

This is largely due to the fact that those individuals performing the current research represent many diverse fields in the biological, chemical, physical and mathematical sciences. Indeed, such a convergence of interests gave rise to the birth of molecular biology and our concepts of DNA nearly 50 years ago, and it stands to reason that under the most favorable circumstances that chiropractic research could experience a similarly bright and dynamic future.

This article was contributed by Anthony L. Rosner, Ph.D., LL.D [Hon.] director of research and education at the Foundation for Chiropractic Education and Research. He can be reached at rosnerfcer@aol.com

Cost Effectiveness of Physical Treatments for Back Pain in Primary Care

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Findings from the: “United Kingdom Back Pain Exercise and Manipulation (UK BEAM) Randomised Trial”

DISCUSSION:
We believe that this is the first study of physical therapy for low back pain to show convincingly that both manipulation alone and manipulation followed by exercise provide cost effective additions to care in general practice. Indeed, as we trained practice teams in the best care of back pain, we may have underestimated the benefit of physical therapy (spinal manipulation) when compared with "usual care" in general practice. The detailed clinical outcomes reported in the accompanying paper reinforce these findings by showing that the improvements in health status reported here reflect statistically significant improvements in function, pain, disability, physical and mental aspects of quality of life, and beliefs about back pain. [1 Read more about this on the UK BEAM Trial Page

OBJECTIVE: To assess the cost effectiveness of adding spinal manipulation, exercise classes, or manipulation followed by exercise ("combined treatment") to "best care" in general practice for patients consulting with low back pain.
DESIGN: Stochastic cost utility analysis alongside pragmatic randomised trial with factorial design.
SETTING: 181 general practices and 63 community settings for physical treatments around 14 centres across the United Kingdom.
PARTICIPANTS: 1287 (96%) of 1334 trial participants.
MAIN OUTCOME MEASURES: Healthcare costs, quality adjusted life years (QALYs), and cost per QALY over 12 months.

RESULTS: Over one year, mean treatment costs relative to "best care" were 195 pounds sterling (360 dollars; 279 euros; 95% credibility interval 85 pounds sterling to 308 pounds sterling) for manipulation, 140 pounds sterling (3 pounds sterling to 278 pounds sterling) for exercise, and 125 pounds sterling (21 pounds sterling to 228 pounds sterling) for combined treatment. All three active treatments increased participants' average QALYs compared with best care alone. Each extra QALY that combined treatment yielded relative to best care cost 3800 pounds sterling; in economic terms it had an "incremental cost effectiveness ratio" of 3800 pounds sterling. Manipulation alone had a ratio of 8700 pounds sterling relative to combined treatment. If the NHS was prepared to pay at least 10,000 pounds sterling for each extra QALY (lower than previous recommendations in the United Kingdom), manipulation alone would probably be the best strategy. If manipulation was not available, exercise would have an incremental cost effectiveness ratio of 8300 pounds sterling relative to best care.

CONCLUSIONS: ***Spinal manipulation is a cost effective addition to "best care" for back pain in general practice.***
****Manipulation alone probably gives better value for money than manipulation followed by exercise.***

Effects of Inclusion of a Chiropractic Benefit on the Utilization of Health Care Resources in Managed Health Care Plan

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*** (*Dr. Larry Basch was employed at ASH during this study and his Clinical Care reviews were part of this study.)***

Introduction: Health insurance coverage for chiropractic care is restricted compared to most other health care services. A barrier to insurance plan coverage of chiropractic care is the lack of data regarding the effects of such coverage on overall health care utilization and costs. The study evaluates the effects of chiropractic coverage on selection (age, gender, comorbidities), total health care costs, rate of utilization of specific high-cost procedures, cost of management of specific NMS conditions, and whether chiropractic care is used as substitution care or add-on care.

Methods: A four-year longitudinal study using administrative claims data compared 700,000 health plan members with chiropractic coverage to 1 million health plan members without chiropractic coverage. There are six distinct cohorts of patients that are evaluated and compared in this study:

Cohort A: Patients in health plans that do cover chiropractic care.
Cohort B: Patients in health plans that do not cover chiropractic care.

Cohort A1: Patients in health plans that cover chiropractic care who had any treatment for NMS conditions.
Cohort B1: Patients in health plans that do not cover chiropractic care who received medical treatment for their NMS conditions.

Cohort A1a: Patients in health plans that do cover chiropractic care who received chiropractic treatment for their NMS conditions.
Cohort A1b: Patients in health plans that do cover chiropractic care who received medical treatment for their NMS conditions.

Results: Members with chiropractic coverage were younger (mean age = 33 vs. 36 years, $p<0.0001$) and less likely to have specific comorbid medical conditions (-<0.0d for six selected medical conditions) as compared to those without chiropractic coverage. Total health care costs for members with chiropractic coverage was 12% lower than plan members without coverage. Among all health plan members who were treated for NMS conditions, total health care costs were 13% lower among those with coverage compared to those without. The cost of treating episodes of low back pain was 28% lower in the group with chiropractic coverage, and the aggregate cost of back pain care per patient over the four-year period was 8% lower in the covered group. Back pain patients with chiropractic coverage had fewer inpatient stays than did those without chiropractic coverage (9.3 vs. 15.6 stays per 1,000 patients, $p<0.001$). The MRI rate was also lower for back pain patients with chiropractic coverage as compared to those without chiropractic coverage (43.2 vs. 68.9 MRIs per 1,000 patients, $p<0.001$). The rate of lower back surgery among patients with chiropractic coverage was lower as well (3.3 vs. 4.8 surgeries per 1,000 patients, $p<0.001$). Back pain patients with chiropractic coverage also received fewer radiographs (17.5 vs. 22.7 per 1,000 patients, $p<0.001$) than did back pain patients without chiropractic coverage. The data also demonstrate that most chiropractic care is substitution for medical care within the health plan.

Conclusion: This study demonstrates that the inclusion of a chiropractic benefit in a managed health care plan

results in a reduction in the overall utilization of health care resources, and thereby, cost savings. There are four mechanism that produce this cost reduction: 1. A favorable selection process; 2. A substitution effect of chiropractic care for medical care; 3. Lower rates of use of high cost procedures; 4. Lower cost management of care episodes by chiropractors.

Chiropractic Care May Reduce Surgeries, X-rays

Back Pain Treatment Less Costly With Chiropractic Care By Daniel J. DeNoon WebMD Health NewsOct. 12, 2004 -- Chiropractic care cuts health care costs, a new study shows.

The study comes from American Specialty Health Plans Inc. of San Diego. The company provides employers with health insurance coverage for complementary medicine, including chiropractic care and acupuncture.

The company compared four years of back pain claims from two groups: 700,000 health plan members with chiropractic care coverage and 1 million members with the same health plan without chiropractic care coverage. It's the largest study yet of how chiropractic care affects the cost of health care, notes study co-leader Douglas Metz, DC, chief health services officer at American Specialty Health.

"No matter how we perform the analysis -- whether we look at total costs to the health plan, at lower back pain care, at musculoskeletal care -- in each data set, the population covered for chiropractic had a lower overall cost to the health plan than the population without access to chiropractic benefits," Metz tells WebMD. "We believe this study is the first to show that chiropractic [care] can be a cost-effective treatment option for back pain."

Costs Down, Patient Satisfaction Up With Chiropractic Care

Compared with doctor-only health plans, the study found that:

- Chiropractic care cut the cost of treating back pain by 28%.
- Chiropractic care reduced hospitalizations among back pain patients by 41%.
- Chiropractic care reduced back surgeries by 32%.
- Chiropractic care reduced the cost of medical imaging, such as X-rays or MRIs, by 37%.

The report appears in the Oct. 11 issue of *Archives of Internal Medicine*.

Although the researchers did not look at patient satisfaction in this study, Metz says company studies show that 95% of chiropractic care patients are satisfied with the care they receive.

Patients often say they are satisfied with the chiropractic care they receive, says Scott Boden, MD, director of the Emory Orthopaedic and Spine Center in Atlanta.

"Chiropractic patients tend to be satisfied because of the hands-on attention they get," Boden tells WebMD. "But there are different schools of chiropractic and different kinds of chiropractors. There are some that make accurate medial diagnoses and give appropriate treatments, and there are those that treat less well-documented disorders with treatments that may not be of acceptable quality. There is a wide range of variation."

Doctors, too, vary in the quality of care they offer back pain patients, Boden says. Patients without chiropractic care coverage may first see general practitioners who may run up health care costs by prematurely sending patients off to get expensive tests and treatments.

"A disease like back pain can have a lot of variability in the ways medical professionals approach patient care," Boden says. "The best thing is to have an organized, integrated approach that uses state-of-the-art and cost-effective care. Many -- if not most -- primary care providers have little training in how to manage

musculoskeletal disorders. That leads to some of the costs. If you were to match a chiropractic network against trained physicians instead of general medical practitioners, you might get different results."

Chiropractic Care Entering Mainstream

This may be the first study to offer concrete evidence that chiropractic care saves money. But businesses already are getting the message, says George DeVries, president and CEO of American Specialty Health.

"Since 1987, we have thousands if not tens of thousands of employer groups that offer chiropractic coverage as a supplemental insurance rider," DeVries tells WebMD. "These range from mom-and-pop groceries to top-10 businesses. The reason they continue to offer these plans is patient satisfaction and low cost."

Boden says his institution is opening a new facility that will offer patients integrated medical care that will include chiropractic care.

"We have everything under one roof. The finishing piece is going to be a complementary medicine center that will include chiropractic, massage, acupuncture, and probably nutrition," he says.

Even so, it would be a leap of faith to say that doctors and chiropractors always agree on the best way to treat back pain.

"We screened 50% of the chiropractors in the Atlanta area before we found two who were medically appropriate and similar in approach to how we deal with spine problems," Boden says.

But Metz maintains that chiropractic care offers quality treatment of back pain.

"The bottom line is that conservative management of back care is effectively performed by doctors of chiropractic," he says. "In cases where medical intervention is needed, chiropractors are schooled to make the appropriate referrals. It is a cost-effective option for back pain."

Cost Per Case Comparison of Back Injury Claims of Chiropractic Versus Medical Management for Conditions With Identical Diagnostic Codes

FROM: J Occup Med 1991 (Aug); 33 (8): 847–852 Jarvis KB, Phillips RB, Morris EK
Research Department, Los Angeles College of Chiropractic, Whittier, CA 90609-1166

This study assessed the total cost per case of chiropractic claims and medical claims for conditions with identical diagnostic codes. The sample consisted of 3062 claims or 40.6% of the 7551 estimated back injury claims from the 1986 Workers' Compensation Fund of Utah. For the total data set, cost for care was significantly more for medical claims, and compensation costs were 10-fold less for chiropractic claims.

FROM: The Cost-Effectiveness of Chiropractic Page:
A workers' compensation study conducted in Utah by Kelly B. Jarvis, D.C., Reed B. Phillips, D.C., Ph.D., and Elliot K. Morris, JD, MBA, compared the cost of chiropractic care to the costs of medical care for conditions with identical diagnostic codes. Results were reported in the August 1991 Journal of Occupational Medicine. The study indicated that costs were significantly higher for medical claims than for chiropractic claims; in addition, the number of work days lost was nearly ten times higher for those who received medical care instead of chiropractic care.

FROM: The Cost Effectiveness Studies Page:
In 1988 a Utah Workers' Compensation Board study found the total treatment costs for back-related injuries cost an average of *$775.30 per case when treated by a doctor of chiropractic*. When injured workers received standard medical treatment as opposed to chiropractic treatment, the average cost per case was $1,665.43.

They also found the mean compensation cost paid out by the Utah Worker's Compensation Board for patients

treated by medical doctors was $668.39, while the mean compensation cost paid for patients treated by chiropractic doctors was only $68.38.

A Comparison of Chiropractic, Medical and Osteopathic Care for Work-related Sprains and Strains

FROM: J Manipulative Physiol Ther 1989 (Oct); 12 (5): 335–344

Johnson MR, Schultz MK, Ferguson AC Technique Department, Palmer College of Chiropractic, Davenport, IA 52803

The cost of care and the number of days lost because of work injury were analyzed from information gathered in a postal card survey sent to all Iowa back or neck injury claimants (sprain/strain) on record for 1984. Descriptive findings for the flow of care of the respondents were evaluated and a comparison made of the benefits and costs of care received by patients treated by chiropractic doctors (DCs), medical doctors (MDs) or osteopathic doctors (DOs). The analysis focused on those workers who lost enough time from work to qualify for compensation (4 days or more), whose cases were closed and who received all their care from one health professional. For those who received care from DCs (n = 266), the mean number of compensated days lost from work was at least 2.3 days less than for those who were treated by MDs (n = 494; p less than 0.025) and at least 3.8 days less than for those who were treated by DOs (n = 102; p less than 0.025). Consequently, much less money in employment compensation was paid, on the average, to those who saw DCs. Findings on provider care costs are less clear-cut because care-cost data on only a portion of the cases was recorded on the State records used. For the data available, the median provider cost was highest for patients who saw DCs, but the mean was highest for those who saw MDs. The study showed that 38% of claimants did change doctors. When change of provider occurred, days lost from work and cost of care varied widely across the care options, but generally, fewer workdays were lost and lower amounts of disability compensation and provider cost paid when chiropractic was included in the care pattern.

Cost-effectiveness of Medical and Chiropractic Care for Acute and Chronic Low Back Pain

FROM: J Manipulative Physiol Ther 2005 (Oct); 28 (8): 555–563

Haas M, Sharma R, Stano M
Center for Outcomes Studies, Western States Chiropractic College, Portland, OR 97230, USA. mhaas@wschiro.edu

OBJECTIVES: To identify relative provider costs, clinical outcomes, and patient satisfaction for the treatment of low back pain (LBP).

METHODS: This was a practice-based, nonrandomized, comparative study of patients self-referring to 60 doctors of chiropractic and 111 medical doctors in 51 chiropractic and 14 general practice community clinics over a 2-year period. Patients were included if they were at least 18 years old, ambulatory, and had low back pain of mechanical origin (n = 2780). Outcomes were (standardized) office costs, office costs plus referral costs for office-based care and advanced imaging, pain, functional disability, patient satisfaction, physical health, and mental health evaluated at 3 and 12 months after the start of care. Multiple regression analysis was used to correct for baseline differences between provider types.

RESULTS: Chiropractic office costs were higher for both acute and chronic patients ($P < .01$). When referrals were included, there were no significant differences in either group between provider types ($P > .20$). Acute and chronic chiropractic patients experienced better outcomes in pain, functional disability, and patient satisfaction ($P < .01$); clinically important differences in pain and disability improvement were found for chronic patients only.

CONCLUSIONS: Chiropractic care appeared relatively cost-effective for the treatment of chronic LBP. 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.

A Comparison of Health Care Costs for Chiropractic and Medical Patients

FROM: J Manipulative Physiol Ther 1993 (Jun); 16 (5): 291–299
Stano M School of Business Administration, Oakland University, Rochester, MI 48039-4401

OBJECTIVE: To compare the health care costs of patients who have received chiropractic treatment for common neuromusculoskeletal disorders with those treated solely by medical and osteopathic physicians.

DESIGN: Retrospective statistical analysis of 2 yr of claims data on various categories of utilization and insurance payments for a large national sample of patients. SETTING: Ambulatory and inpatient care.

PATIENTS: A total of 395,641 patients with one or more of 493 neuromusculoskeletal ICD-9 codes.

OUTCOME MEASURES: Hospital admission rates and 10 categories of insurance payments.

RESULTS: Nearly one-fourth of patients were treated by chiropractors. Patients receiving chiropractic care experienced significantly lower health care costs as represented by third party payments in the fee-for-service sector. Total cost differences on the order of $1,000 over the 2-yr period were found in the total sample of patients as well as in subsamples of patients with specific disorders. The lower costs are attributable mainly to lower inpatient utilization. The cost differences remain statistically significant after controlling for patient demographics and insurance plan characteristics.

CONCLUSIONS: Although work is in progress to control for possible variations in case mix and to compare outcomes in addition to costs, these preliminary results suggest a significant cost-saving potential for users of chiropractic care. The results also suggest the need to reexamine insurance practices and programs that restrict chiropractic coverage relative to medical coverage.

Testimony to the Department of Veterans Affairs' Chiropractic Advisory Committee

George B. McClelland, D.C. Foundation for Chiropractic Education and Research March 25, 2003

To assist in documenting the testimony of my colleague, Dr. James Edwards, I would like to take this opportunity to offer a sampling of citations, which should provide support to several of the elements which he proposed as benchmarks with which to judge the effectiveness of adding chiropractic as a health care option in a core policy.

1. Patient Satisfaction:

From a number of studies, there is little to contradict the assertion that patient satisfaction with chiropractic care, in a variety of settings, has consistently been high. [1-4] Indeed, for matched back pain conditions, patient satisfaction with chiropractic treatment has invariably been shown to be significantly greater than that with conventional management [administered by a primary care physician, an orthopedist, or an HMO provider]. [5-7] Satisfied patients are far more likely to be compliant in their treatment, [8] theoretically bestowing chiropractic patients with yet another advantage over treatment by other providers in terms of outcomes.

2. Cost-effectiveness:

In the treatment of musculoskeletal disorders, despite the fact that most studies have not properly factored in such patient characteristics as severity and chronicity and lack the complete assessment of all direct costs and most indirect costs, the bulk of articles reviewed demonstrate lower costs for chiropractic. [9] This pattern is consistently observed from the perspectives of workers' compensation studies, [10-15] databases from insurers, [16-18] or the analysis of a health economist employed by the provincial government of Ontario. [19-20] Other studies have suggested the opposite [that chiropractic services are more expensive than medical], [5,21,22] but these contain significant flaws [21] which have been refuted. [23]

The cost advantages for chiropractic for matched conditions appear to be so dramatic that Pran Manga, the aforementioned Canadian health economist, has concluded that doubling the utilization of chiropractic services from 10% to 20% may realize savings as much as $770 million in direct costs and $3.8 billion in indirect costs.

[20] When iatrogenic effects [yet to be discussed] are factored in, the cost advantages of spinal manipulation as a treatment alternative become even more prominent. In one study, for instance, it was shown that for managing disc herniations, the cost of treatment failures following a medical course of treatment [chymopapain injections] averaged 300 British pounds per patient, while there were no such costs following spinal manipulation. [24] Imagine how failed back surgery might compare. Finally, in no cost studies to date have legal burdens been calculated, which one would expect should be heavily advantageous for chiropractic health management.

3. Unnecessary Surgical Procedures:

In 1974, the Congressional Committee on Interstate and Foreign Commerce held hearings on unnecessary surgery. Their findings from the first surgical second opinion program found that 17.6% of recommendations for surgery were not confirmed. The House Subcommittee on Oversight and Investigations extrapolated these figures to estimate that, on a nationwide basis, there were 2.4 million unnecessary surgeries performed annually resulting in 11,900 deaths at an annual cost of $3.9 billion. [25] With the total number of lower back surgeries having been estimated in 1995 to exceed 250,000 in the U.S. at a hospital cost of $11,000 per patient. [26] This would mean that the total number of unnecessary back surgeries each year in the U.S. could approach 44,000, costing as much as $484 million.

4. Over-utilization of Pharmaceuticals:

In the area of antibiotics alone, the most prominent problem has been the over-utilization of drugs. The Center for Disease Control, for instance, estimates that 1/3 of the antibiotics taken on an outpatient basis in the United States are unnecessary. Increasing use of antibiotics is linked to the increase of their resistance by bacteria; in the United States, 14,000 people die each year from drug-resistant infections picked up in hospitals. [27]

In terms of healthcare costs, the rising use of pharmaceuticals has profound consequences. From 1993 to 1998, for instance, annual drug expenditures in the U.S. nearly doubled from $50.6 billion to $93.4 billion, most of the expenses being borne by third-party payors. [28] Total spending on prescription drugs doubled from 1995 to 2000 and tripled from 1990 to 2000, constituting one of the main factors driving up health care expenditures overall. [29]

5. Medical Errors:

Despite the unquestionable advances in treatments for such major illnesses as heart disease, cancer, or infectious disease, the healthcare system in America is still beset with such statistics as [i] 106,000 deaths per year from non-error, adverse effects of medications, [ii] 12,000 deaths per year from unnecessary surgery, [iii] 80,000 deaths per year from nosocomial [hospital origin] infections, [iv] 7000 deaths per year from medication errors in hospitals, and [v] 20,000 deaths per year from other hospital errors. The total turns out to be some 225,000 deaths per year from iatrogenic causes, [30-31] or even higher [230,000-280,000 deaths per year according to the Institute of Medicine [33-34]]. When one factors in outpatient settings, the manifestations of iatrogenesis become even more numerous. Now one needs to figure in, on an annual basis, 116 million extra physician visits, 77 million extra prescriptions, 8 million hospitalizations, 3 million long-term admissions, and, incredibly, $77 million in extra costs and 199,000 additional deaths. [35]

The CEO of the Beth Israel Deaconess Medical Center in Boston caught the full essence of this problem and made it unmistakably clear:

"When all sources of error are added up, the likelihood that a mishap will injure a patient in a hospital is at least three percent and probably much higher. This is a serious health problem. When one considers that a typical airline handles customers' baggage at a far lower error rate than we handle the administration of drugs to patients, it is also an embarrassment." [36]

It gets worse. From the time that the Institute of Medicine painted such a discouraging picture of errors in American hospitals in November 1999, [34] little change was noted by December 2002 by Lucian Leape, the Harvard physician who helped to write the original report. Among the reasons cited were: [i] the fierce resistance by doctors and hospitals to accomplish the mandatory reporting of errors, [ii] the lack of governmental oversight, and [iii] the lack of an effective consumer lobby. [37] According to the Chicago Tribune some months ago, [38]

75% of the nation's hospitals have never filed a report with the databank created by the Joint Commission on Accreditation of Healthcare Organizations [JCAHO], a licensing, government-sanctioned watchdog agency charged with oversight of the nation's hospitals. [38] As many as "tens of thousands" of patient deaths, and potentially preventable deaths, may never have been reported. The JCAHO turned to its seven-year database and, lo and behold, found only ten such reports involving 53 patients. The reason? According to the JCAHO President, Dennis O'Leary, this egregious underreporting was deemed possible because "many healthcare organizations do not consider the incidents as errors." [39]

Mr. Chairman and Members of the Committee, these are the most salient references that I can offer at this time to highlight the importance of each of these five elements, which must be addressed by any health care policy.

In closing, while I have not addressed the issue of treatment effectiveness or outcomes, I would remind you of the article published last year, by Meeker and Haldeman, in the February issue of the Annals of Internal Medicine. [40] In that article the authors noted that at least 73 randomized clinical trials [RCT] assessing manipulation [adjustment] had been published in English-language, peer-reviewed, scientific journals. Of those, 43 addressed the treatment of low back pain, 30 of those favored manipulation over the comparison interventions, and 13 were equivocal. [This is an even greater data base than the 13 RCTs assessed by the interdisciplinary panel that supported the use of manipulation in the 1994 AHCPR Guideline #14, [41] on acute low back pain.] In the 2002 Annals article, another 20 RCTs evaluated manipulation in the treatment of neck pain and headache. Again the majority of these favored manipulation over the comparative interventions with the remainder showing the outcomes to be equivocal at worst.

Certainly, it is important to our veterans to have available a satisfying, cost effective, lower risk form of intervention that has demonstrated effectiveness in treating numerous neuromusculoskeletal complaints. It should be especially important when that intervention, chiropractic manipulative treatment/adjustment, is provided by skilled doctors of chiropractic, broadly trained in the all aspects of clinical assessment and conservative management of neuromusculoskeletal conditions.

Dose-response for Chiropractic Care of Chronic Low Back Pain

FROM: Spine J 2004 (Sep); 4 (5): 574–583 Haas M, Groupp E, Kraemer DF
Center for Outcome Studies, Western States Chiropractic College, 2900 NE 132nd Avenue, Portland, OR 97230, USA.
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BACKGROUND CONTEXT: There have been no trials of optimal chiropractic care in terms of number of office visits for spinal manipulation and other therapeutic modalities.
PURPOSE: To conduct a pilot study to make preliminary identification of the effects of number of chiropractic treatment visits for manipulation with and without physical modalities (PM) on chronic low back pain and disability.
STUDY DESIGN/SETTING: Randomized controlled trial with a balanced 4x2 factorial design. Conducted in the faculty practice of a chiropractic college outpatient clinic.
PATIENT SAMPLE: Seventy-two patients with chronic, nonspecific low back pain of mechanical origin.
MAIN OUTCOME MEASURES: Von Korff pain and disability (100-point) scales.
METHODS: Patients were randomly allocated to visits (1, 2, 3 or 4 visits/week for 3 weeks) and to treatment regimen (spinal manipulation only or spinal manipulation with physical modalities). All patients received high-velocity low-amplitude spinal manipulation. Half received one or two of the following PM at each visit: soft tissue therapy, hot packs, electrotherapy or ultrasound.
RESULTS: Pain intensity: At 4 weeks, there was a substantial linear effect of visits favoring a larger number of visits: 5.7 points per 3 visits (SE=2.3, p=.014). There was no effect of treatment regimen. At 12 weeks, the data suggested the potential for a similar effect of visits on patients receiving both manipulation and PM. Functional disability: At 4 weeks, a visits effect was noted (p=.018); the slope for group means was approximately 5 points per 3 visits. There were no group differences at 12 weeks.

CONCLUSIONS: There was a positive, clinically important effect of the number of chiropractic treatments for chronic low back pain on pain intensity and disability at 4 weeks. Relief was substantial for patients receiving care 3 to 4 times per week for 3 weeks.

Safety of Spinal Manipulation in the Treatment of Lumbar Disk Herniations: A Systematic Review and Risk Assessment

FROM: J Manipulative Physiol Ther 2004 (Mar); 27 (3): 197–210 **Drew Oliphant, DC**

OBJECTIVE: To provide a qualitative systematic review of the risk of spinal manipulation in the treatment of lumbar disk herniations (LDH) and to estimate the risk of spinal manipulation causing a severe adverse reaction in a patient presenting with LDH.

DATA SOURCES: Relevant case reports, review articles, surveys, and investigations regarding treatment of lumbar disk herniations with spinal manipulation and adverse effects and associated risks were found with a search of the literature.

DATA SYNTHESIS: Prospective/retrospective studies and review papers were graded according to quality, and results and conclusions were tabulated. From the data published, an estimate of the risk of spinal manipulation causing a clinically worsened disk herniation or cauda equina syndrome (CES) in patients presenting with LDH was calculated. This was compared with estimates of the safety of nonsteroidal anti-inflammatory drugs (NSAIDs) and surgery in the treatment of LDH.

RESULTS: An estimate of the risk of spinal manipulation causing a clinically worsened disk herniation or CES in a patient presenting with LDH is calculated from published data to be less than 1 in 3.7 million.

CONCLUSIONS: The apparent safety of spinal manipulation, especially when compared with other "medically accepted" treatments for LDH, should stimulate its use in the conservative treatment plan of LDH.

Low Back Pain of Mechanical Origin: Randomised Comparison of Chiropractic and Hospital Outpatient Treatment

British Medical Journal 1990 (Jun 2); 300 (6737): 1431–1437 **Meade TW, Dyer S, Browne W, Townsend J, Frank AO**
MRC Epidemiology and Medical Care Unit, Northwick Park Hospital, Harrow, Middlesex

OBJECTIVE: To compare chiropractic and hospital outpatient treatment for managing low back pain of mechanical origin.
DESIGN: Randomised controlled trial. Allocation to chiropractic or hospital management by minimisation to establish groups for analysis of results according to initial referral clinic, length of current episode, history, and severity of back pain. Patients were followed up for up two years.
SETTING: Chiropractic and hospital outpatient clinics in 11 centres.
PATIENTS: 741 Patients aged 18-65 who had no contraindications to manipulation and who had not been treated within the past month.
INTERVENTIONS: Treatment at the discretion of the chiropractors, who used chiropractic manipulation in most patients, or of the hospital staff, who most commonly used Maitland mobilisation or manipulation, or both. MAIN OUTCOME

MEASURES--Changes in the score on the Oswestry pain disability questionnaire and in the results of tests of straight leg raising and lumbar flexion.
RESULTS: Chiropractic treatment was more effective than hospital outpatient management, mainly for patients with chronic or severe back pain. A benefit of about 7% points on the Oswestry scale was seen at two years. The benefit of chiropractic treatment became more evident throughout the follow up period. Secondary outcome measures also showed that chiropractic was more beneficial.

CONCLUSIONS: For patients with low back pain in whom manipulation is not contraindicated chiropractic almost certainly confers worthwhile, long term benefit in comparison with hospital outpatient management. The benefit is seen mainly in those with chronic or severe pain. Introducing chiropractic into NHS practice should be considered.

A Randomized Clinical Trial Comparing Chiropractic Adjustments to Muscle Relaxants for Subacute Low Back Pain

Journal of Manipulative Physiol Ther 2004 (Jul); 27 (6): 388-398
Kathryn T. Hoiriis, DC, Bruce Pfleger, PhD, Frederic C. McDuffie, MD, George Cotsonis, MA, Omar Elsangak, MBBCh, DC, Roger Hinson, DC, Gregoria T. Verzosa, DC
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See also The Use of Muscle Relaxant Medications in Acute Low Back Pain
SPINE 2004 (Jun 15); 29 (12): 1346–1351
This paper found that muscle relaxant users had somewhat slower recovery from their episode of back pain..

BACKGROUND: The adult lifetime incidence for low back pain is 75% to 85% in the United States. Investigating appropriate care has proven difficult, since, in general, acute pain subsides spontaneously and chronic pain is resistant to intervention. Subacute back pain has been rarely studied.

OBJECTIVE: To compare the relative efficacy of chiropractic adjustments with muscle relaxants and placebo/sham for subacute low back pain.

DESIGN: A randomized, double-blind clinical trial.

METHODS: Subjects (N = 192) experiencing low back pain of 2 to 6 weeks' duration were randomly allocated to 3 groups with interventions applied over 2 weeks. Interventions were either chiropractic adjustments with placebo medicine, muscle relaxants with sham adjustments, or placebo medicine with sham adjustments. Visual Analog Scale for Pain, Oswestry Disability Questionnaire, and Modified Zung Depression Scale were assessed at baseline, 2 weeks, and 4 weeks. Schober's flexibility test, acetaminophen usage, and Global Impression of Severity Scale (GIS), a physician's clinical impression used as a secondary outcome, were assessed at baseline and 2 weeks.

RESULTS: Baseline values, except GIS, were similar for all groups. When all subjects completing the protocol were combined (N = 146), the data revealed pain, disability, depression, and GIS decreased significantly (P <.0001); lumbar flexibility did not change. Statistical differences across groups were seen for pain, a primary outcome, (chiropractic group improved more than control group) and GIS (chiropractic group improved more than other groups). No significant differences were seen for disability, depression, flexibility, or acetaminophen usage across groups.

CONCLUSION: Chiropractic was more beneficial than placebo in reducing pain and more beneficial than either placebo or muscle relaxants in reducing Global Impression of Severity Scale (GIS).

From the American Chiropractic Association (ACA) Web Site on Chiropractic Research

Numerous studies have shown that chiropractic treatment is both safe and effective. The following are excerpts from a few of the more recent studies. By examining the research supporting chiropractic care, you will find that chiropractic offers tremendous potential in meeting today's Military health care challenges.

For Acute and Chronic Pain

Journal of Manipulative and Physiological Therapeutics

Nyiendo et al (2000)

"Patients with chronic low-back pain treated by chiropractors showed greater improvement and satisfaction at one month than patients treated by family physicians. Satisfaction scores were higher for chiropractic patients. A higher proportion of chiropractic patients **(56 percent vs. 13 percent**) reported that their low-back pain was better or much better, whereas nearly one-third of medical patients reported their low-back pain was worse or much worse."

British Medical Journal

Korthals-de Bos et al (2003)

In a Randomized controlled trial, 183 patients with neck pain were randomly allocated to manual therapy (spinal mobilization), physiotherapy (mainly exercise) or general practitioner care (counseling, education and drugs) in a 52-week study. The clinical outcomes measures showed that manual therapy resulted in faster recovery than physiotherapy and general practitioner care. Moreover, total costs of the manual therapy-treated patients were about one-third of the costs of physiotherapy or general practitioner care.

In Comparison to Other Treatment Alternatives

Journal of Manipulative and Physiological Therapeutics

Haas et al (2005)

"Acute and chronic chiropractic patients experienced better outcomes in pain, functional disability, and patient satisfaction; clinically important differences in pain and disability improvement were found for chronic patients."

Annals of Internal Medicine

Hoving et al (2002)

"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."

For Headaches

Duke Evidence Report

McCrory, Penzlen, Hasselblad, Gray (2001)

"Cervical spine manipulation was associated with significant improvement in headache outcomes in trials involving patients with neck pain and/or neck dysfunction and headache."

Journal of Manipulative and Physiological Therapeutics

Boline et al. (1995)

"The results of this study show that spinal manipulative therapy is an effective treatment for tension headaches. . . Four weeks after cessation of treatment . . . the patients who received spinal manipulative therapy experienced a sustained therapeutic benefit in all major outcomes in contrast to the patients that received amitriptyline therapy, who reverted to baseline values." '

Cost Effectiveness

Journal of Manipulative and Physiological Therapeutics

Haas et al (2005)

"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 manipulative efficacy: manipulation-based therapy is at least as good as and, in some cases, better than other therapies."

Patient Satisfaction

Patient Satisfaction With Chiropractic Physicians In An Independent Physicians' Association

J Manipulative Physiol Ther 2001 (Nov); 24 (9): 556–559
Various aspects of chiropractic care were given a rating of "excellent" by the following percentage of respondents: Length of time to get an appointment (84.9%); convenience of the office (57.7%); access to the office by telephone (77.3%); length of wait at the office (75.7%); time spent with the provider (74.3%); explanation of what was done during the visit (72.8%); technical skills of the chiropractor (83.3%); and the personal manner of the chiropractor (92.4%). The visit overall was rated as excellent by 83.3% of responders, and 95.5% stated they would definitely recommend the provider to others.

Patient satisfaction with Chiropractic Care in Los Angeles

AHSR FHSR Annu Meet Abstr Book 1994; 11: 11
This RAND Corporation Study found For overall care, 92% of the patients choose the care as either excellent or the best. Although the ratings on all the items are high the highest ratings were given to the more personal qualities of the practitioner: courtesy, politeness, and respect shown to the patient (92%); interest shown in the patient as a person (91%); willingness to listen (89%); ability to put the patient at ease (89%). These results support those of previous studies on chiropractic that suggest that the high satisfaction with chiropractic care is a result more of the personal health encounter than the therapeutic outcome. They also suggest that other providers could learn much from the interpersonal art of chiropractors.

American Journal of Public Health

Hertzman-Miller et al (2002)

"Chiropractic patients were found to be more satisfied with their back care providers after four weeks of treatment than were medical patients. Results from observational studies suggested that back pain patients are more satisfied with chiropractic care than with medical care. Additionally, studies conclude that patients are more satisfied with chiropractic care than they were with physical therapy after six weeks."

Popularity of Chiropractic

Annals of Internal Medicine

Meeker, Haldeman (2002)

"Chiropractic is the largest, most regulated, and best recognized of the complementary and alternative medicine (CAM) professions. CAM patient surveys show that chiropractors are used more often than any other alternative provider group and *patient satisfaction with chiropractic care is* ***very high***. There is steadily increasing patient use of chiropractic in the United States, which has tripled in the past two decades."

Chronic Spinal Pain Syndromes: A

Clinical Pilot Trial Comparing Acupuncture, A Nonsteroidal Anti-inflammatory Drug, and Spinal Manipulation

J Manipulative Physiol Ther 1999 (Jul); 22 (6): 376–381
Giles LG, Muller R National Unit for Multidisciplinary Studies of Spinal Pain, Townsville General Hospital, Queensland, Australia
OBJECTIVE: To compare needle acupuncture, medication (tenoxicam with ranitidine), and spinal manipulation for managing chronic (>13 weeks duration) spinal pain syndromes.
DESIGN: Prospective, randomized, independently assessed preintervention and postintervention clinical pilot trial.
SETTING: Specialized spinal pain syndrome out-patient unit at Townsville General Hospital, Queensland, Australia.
SUBJECTS: Seventy-seven patients (without contraindication to manipulation or medication) were recruited.
INTERVENTIONS: One of three separate, clearly defined intervention protocols: needle acupuncture, nonsteroidal anti-inflammatory medication, or chiropractic spinal manipulation.
MAIN OUTCOME MEASURES: Main outcome measures were changes (4 weeks vs. initial visit) in the scores of the (1) Oswestry Back Pain Disability Index, (2) Neck Disability Index, and (3) three visual analogue scales of local pain intensity.
RESULTS: Randomization was successful. After a median intervention period of 30 days, spinal manipulation was the only intervention that achieved statistically significant improvements (all expressed as percentages of the original scores) with (1) a reduction of 30.7% on the Oswestry scale, (2) an improvement of 25% on the neck disability index, and (3) reductions on the visual analogue scale of 50% for low back pain, 46% for upper back pain, and 33% for neck pain (all P<.001). Neither of the other interventions showed any significant improvement on any of the outcome measures.

CONCLUSIONS: The consistency of the results provides, in spite of several discussed shortcomings of this pilot study, evidence that in patients with chronic spinal pain syndromes spinal manipulation, if not contraindicated, results in greater improvement than acupuncture and medicine.

U.S. Government Agency Report

A 1994 study published by the U.S. Agency for Health Care Policy and Research (AHCPR) and the U.S. Department of Health and Human Services endorses spinal manipulation for acute low back pain in adults in its Clinical Practice Guideline #14. An independent multidisciplinary panel of private-sector clinicians and other experts convened and developed specific statements on appropriate health care of acute low back problems in adults. One statement cited, relief of discomfort (low back pain) can be accomplished most safely with spinal manipulation, and/or non-prescription medication.

The Magna Report

A major study to assess the most appropriate use of available health care resources was reported in 1993. This was an outcome study funded by the Ontario Ministry of Health and conducted in hopes of sharing information about ways to reduce the incidence of work-related injuries, and to address cost-effective ways to rehabilitate disabled and injured workers. The study was conducted by three health economists led by University of Ottawa Professor Pran Manga, Ph.D. The report of this study is commonly called the Manga Report. The Manga Report overwhelmingly supported the efficacy, safety, scientific validity, and cost-effectiveness of chiropractic for low-back pain. Additionally, it found out that higher patient satisfaction levels were associated with chiropractic care than with medical treatment alternatives.

"Evidence from Canada and other countries suggests potential savings of hundreds of millions annually," the Manga Report states. "The literature clearly and consistently shows that the major savings from chiropractic management come from fewer and lower costs of auxiliary services, fewer hospitalizations, and a highly significant reduction in chronic problems, as well as in levels and duration of disability."

RAND Study on Low-Back Pain

A four-phase study conducted in the early 1990s by RAND, one of America's most prestigious centers for research in public policy, science and technology, explored many indications of low-back pain.

In the RAND studies, an expert panel of researchers, including medical doctors and doctors of chiropractic, found that:

- chiropractors deliver a substantial amount of health care to the U.S. population.
- spinal manipulations are of benefit to some patients with acute low-back pain.

The RAND study marked the first time that representatives of the medical community went on record stating that spinal manipulation is an appropriate treatment for certain low-back pain conditions.

The New Zealand Commission Report A particularly significant study of chiropractic was conducted between 1978-1980 by the New Zealand Commission of Inquiry. In its 377-page report to the House of Representatives, the Commission called its study "probably the most comprehensive and detailed independent examination of chiropractic ever undertaken in any country."

The Commission entered the inquiry with "the general impression ... shared by many in the community: that chiropractic was an unscientific cult, not to be compared with orthodox medical or paramedical services."

By the end of the inquiry, the commission reported itself "irresistibly and with complete unanimity drawn to the conclusion that modern chiropractic is a soundly-based and valuable branch of health care in a specialized area..." Conclusions of the Commission's report, based on investigations in New Zealand, the U.S., Canada, the United Kingdom, and Australia, stated:

- Spinal manual therapy in the hands of a registered chiropractor is safe.
- Spinal manual therapy can be effective in relieving musculo-skeletal symptoms such as back pain, and other symptoms known to respond to such therapy, such as migraine.
- Chiropractors are the only health practitioners who are necessarily equipped by their education and training to carry out spinal manual therapy.
- In the public interest and in the interests of patients, there must be no impediment to full professional cooperation between chiropractors and medical practitioners.

Florida Workers' Compensation Study
A 1988 study of 10,652 Florida workers' compensation cases was conducted by Steve Wolk, Ph.D., and reported by the Foundation for Chiropractic Education and Research. It was concluded that "a claimant with a back-related injury, when initially treated by a chiropractor versus a medical doctor, is less likely to become temporarily disabled, or if disabled, remains disabled for a shorter period of time; and claimants treated by medical doctors were hospitalized at a much higher rate than claimants treated by chiropractors."

Washington HMO Study
In 1989, a survey administered by Daniel C. Cherkin, Ph.D., concluded that patients receiving care from health maintenance organizations (HMO's) within the state of Washington were three times as likely to report satisfaction with care from chiropractors as they were with care from other physicians. The patients were also more likely to believe that their chiropractor was concerned about them.

Utah Workers' Compensation Study
A workers' compensation study conducted in Utah by Kelly B. Jarvis, D.C., Reed B. Phillips, D.C., Ph.D., and Elliot K. Morris, JD, MBA, compared the cost of chiropractic care to the costs of medical care for conditions with identical diagnostic codes. Results were reported in the August 1991 Journal of Occupational Medicine.

The study indicated that costs were significantly higher for medical claims than for chiropractic claims; in addition, the number of work days lost was nearly ten times higher for those who received medical care instead of chiropractic care.

The Meade Study
Chiropractic Offers Long-Term Benefits: This study concluded, "For patients with low-back in whom manipulation is not contraindicated, chiropractic almost certainly confers worthwhile, long-term benefit in comparison to hospital outpatient management."

Koes' Clinical Trial
The Positive Results if Chiropractic are Lasting: Manipulative therapy (chiropractic) and physiotherapy were compared as treatments for persistent back and neck complaints. After 12 months, the manipulative therapy group showed greater improvement in the primary complaint with fewer visits.

Patient Disability Comparison
A 1992 article in the Journal of Family Practice reported a study by D.C. Cherkin, Ph.D., which compared patients of family physicians as significantly higher (mean 39.7) than for patients managed by chiropractors (mean 10.8). "A related editorial in the same issue referred to risks of complications from lumbar manipulation as being "very low."

Oregon Worker's Compensation Study
A 1991 report on a workers' compensation study conducted in Oregon by Joanne Nyiendo, Ph.D., concluded that the median time loss days (per case) for comparable injuries was 9.0 for patients receiving treatment by a doctor of chiropractic and 11.5 for treatment by a medical doctor.

Stano Cost Comparison Study
A study by Miron Stano, Ph.D., reported in the June 1993 Journal of Manipulative and Physiological Therapeutics involved 395,641 patients with neuromusculoskeletal conditions. Results over a two-year period showed that patients who received chiropractic care incurred significantly lower health care costs than did patients treated solely by medical or osteopathic physicians.

Saskatchewan Clinical Research
Following a 1993 study, researchers J. David Cassidy, D.C., Haymo Thiel, D.C., M.S., and W. Kirkaldy-Willis, M.D., of the Back Pain Clinic at the Royal University Hospital in Saskatchewan concluded that "the treatment of lumbar intervertebral disk herniation by side posture manipulation is both safe and effective."

Wight Study on Recurring Headaches A 1978 study conducted by J.S. Wight, D.C., and reported in the ACA Journal of Chiropractic, indicated that 74.6% of patients with recurring headaches, including migraines, were either cured or experienced reduced headache symptomatology after receiving chiropractic manipulation.

1991 Gallup Poll A 1991 demographic poll conducted by the Gallup Organization revealed that 90% of chiropractic patients felt their treatment was effective; more than 80% were satisfied with that treatment; and nearly 75% felt most of their expectations had been met during their chiropractic visits.

1990 British Medical Journal Report A study conducted by T.W. Meade, a medical doctor, and reported in the June 2, 1990, British Medical Journal concluded after two years of patient monitoring, "for patients with low-back pain in whom manipulation is not contraindicated, chiropractic almost certainly confers worthwhile, long-term benefit in comparison with hospital outpatient management."

Virginia Comparative Study
A 1992 study conducted by L.G. Schifrin, Ph.D., provided an economist assessment of mandated health insurance coverage for chiropractic treatment within the Commonwealth of Virginia. As reported by the College of William and Mary, and the Medical College of Virginia, the study indicated that chiropractic provides therapeutic benefits at economical costs. The report also recommended that chiropractic should be a widely available form of health care.

1992 America Health Policy Report
A 1992 review of data from over 2,000,000 users of chiropractic care in the U.S., reported in the Journal of American Health Policy, stated that "chiropractic users tend to have substantially lower health care costs," and "chiropractic care reduces the use of both physician and hospital care."

1985 University of Saskatchewan Study
In 1985 the University of Saskatchewan conducted a study of 283 patients "who had not responded to previous conservative or operative treatment" and who were initially classified as totally disabled. The study revealed that "81% ... became symptom free or achieved a state of mild intermittent pain with no work restrictions" after daily spinal manipulations were administered.