Research Highlights

Changing Views of Chiropractic

. . . and a National Reappraisal of Nontraditional Health Care

For half a century, the American Medical Association waged war against chiropractic, an intervention that relies on spinal adjustments to treat health problems. Chiropractors were regarded as the modern-day equivalent of snake-oil salesmen.

Today, chiropractors are the third largest group of health care providers, after physicians and dentists, who treat patients directly. AMA policy now states that it is ethical for physicians not only to associate professionally with chiropractors but also to refer patients to them for diagnostic or therapeutic services.

"In the last decade of the 20th century, chiropractic has begun to shed its status as a marginal or deviant approach to care and is becoming more mainstream," said Paul Shekelle, M.D. and director of RAND's Southern California Evidence-Based Practice Center. He played a key role in RAND's landmark investigations of chiropractic that stimulated a national reappraisal of this and other nontraditional health care approaches.

What led to the change in attitude toward chiropractic? Major events included:

- The 1990 U.S. Supreme Court decision on a lawsuit, known as the *Wilks* case, that found the AMA and others guilty of illegal conspiracy against the chiropractic profession.
- Recognition by the established medical community that most medical therapies for back pain are ineffective.
- RAND's 1992 groundbreaking analysis of spinal manipulation that showed this intervention does benefit some people with acute low-back pain. This study directly influenced the Agency for Healthcare Research and Quality to include positive recommendations on spinal manipulation in its 1994 clinical practice guidelines on low-back pain. This federal agency issues such guidelines to help the medical community improve the quality of health care in the United States.

Chiropractic: Then and Now

Chiropractic, a term used both as a noun and adjective, comes from the Greek and means "done by hand." The practice originated in the late 1890s with Daniel David Palmer, a self-taught healer in Iowa who sought a cure for illness and disease that did not rely on drugs or surgery. Palmer reported curing deafness in a man who had lost his hearing after straining doing heavy work. Palmer attributed the hearing loss to a displaced vertebra and treated it by adjusting the man's spine. Based on this and other cases he treated with spinal manipulation (also called *spinal adjustment*), Palmer advanced his theory that most disease is caused by misaligned vertebrae that impinge on spinal nerves. Such misalignments are called *subluxations*. According to Palmer, correcting these misalignments reestablishes normal nerve and brain function and allows the body to heal itself.

Today, only a small fraction of chiropractors believe that their treatments can substitute for traditional medicine to care for all illness and disease. Many practitioners focus on *musculoskeletal* problems of the spine, that is, conditions affecting the backbone and associated muscles. In fact, most people go to chiropractors for low-back pain.

Chiropractors most commonly adjust the spine by using their hands to apply forceful pressure, known as a *high-velocity thrust*, on areas that are out of alignment or that do not have normal range of motion. Sometimes this causes an audible "pop." At times, a chiropractor will do an adjustment with an instrument called an *activator*. Practitioners also use *mobilization* (manual therapy that does not involve a high-velocity thrust) as well as physical therapy.

For more information on the studies cited here, see the selected bibliography on p. 5.

Although spinal manipulation is the key component of chiropractic care, most practitioners take a holistic approach and include such things as nutrition counseling and exercise advice in their treatment program.

In order to be called a Doctor of Chiropractic Medicine (DC), practitioners must graduate from one of the 16 chiropractic schools currently accredited by the Council on Chiropractic Education. Table 1 compares basic science education between chiropractic and medical schools. Before chiropractors can practice, they must be licensed by their state. All states require them to pass the National Chiropractic Board examination.

Chiropractic services are covered by most health insurance plans, including Medicare. However, conflict between the chiropractic and medical communities continues over such issues as limitations on insurance reimbursements for chiropractic services and allowing health care providers other than chiropractors to do spinal adjustments.

Shedding Light on Chiropractic

Prior to 1990, very little was known about chiropractic care in terms of use, costs, effectiveness, or quality—parameters used to evaluate mainstream medical practices. That changed when RAND researchers published a series of landmark studies that broke through this information barrier. The studies address a number of key questions:

Who goes to chiropractors and why? **Patients are primarily middle-aged, married people. Biggest complaint: low-back pain (Shekelle and Brook, 1991; Hurwitz et al., 1998).**

These findings are further summarized in the box below. The 1991 RAND study was the first estimate of the use of chiropractic services in the United States. The 1998 study updated and expanded on it. For both studies, the researchers examined patient records from randomly selected chiropractors in the United States and Canada.

Snapshot of Chiropractic Patients and Care in the United States and Canada

- Patients are primarily middle-aged and married; slightly more women than men visit chiropractors.
- About two-thirds of visits are for low-back pain, followed by head and neck pain and problems with extremities.
- Less than 10 percent of patients seek help for nonmusculoskeletal problems, such as migraine, middle-ear inflammation (otitis media), and asthma.
- In the United States, people make around 280 million visits each year to chiropractors.
- People now go to chiropractors twice as often as they did 15 to 20 years ago.
- There are large regional variations in the number of chiropractic visits needed to treat specific problems.

Table 1. Comparison of Chiropractic and Medical School Curriculum

	Chiropractic schools		Medical schools	
Characteristics	Average hours (all U.S. schools)	Percentage of total contact hours	Average hours (all U.S. schools)	Percentage of total contact hours
Total contact	4,826	100	4,667	100
Basic sciences	1,420	29	1,200	26
Clerkship (clinical experience prior to graduation)	1,405	29	3,467*	74
Clinical sciences	3,406	71	3,467*	76
Chiropractic sciences	1,975	41	NA	NA

SOURCE: I. Coulter et al., 1998.
*Combined in medical schools.

Does chiropractic work? **Yes, for some low-back pain; maybe, for some neck complaints and headache (Shekelle et al., 1992; Hurwitz et al., 1996).**

RAND researchers were the first to systematically evaluate all available data on spinal manipulation for low-back pain. Their 1992 report was a watershed study that triggered a national review of chiropractic and other forms of alternative health care.

Their conclusions: lumbar (lower-back) spinal manipulation hastens recovery from uncomplicated, acute (less than 3 weeks' duration) low-back pain. Not enough data were available to evaluate its long-term effect on chronic (more than 13 weeks' duration) low-back pain.

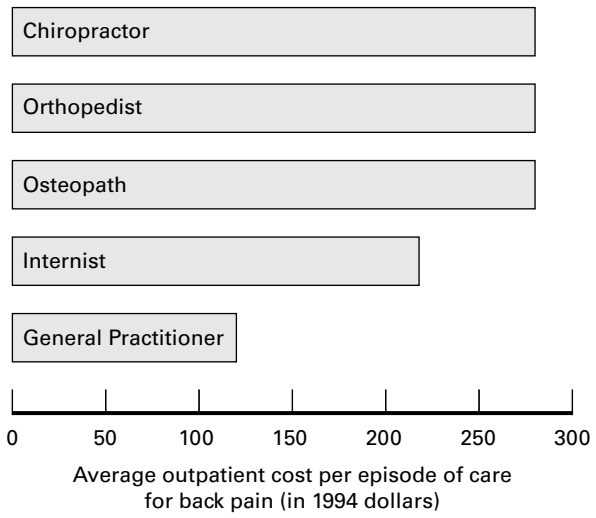
RAND researchers used the same analytical approach to evaluate treatment of the neck for neck pain and headache. They looked at studies that evaluated mobilization and physical therapy as well as manipulation. Their findings: (1) mobilization—but not manipulation or physical therapy—probably provides at least short-term relief from acute neck pain; (2) manipulation is probably slightly better than mobilization and physical therapy for subacute (3 to 13 weeks' duration) or chronic neck pain, and all three treatments are probably better than standard medical care, such as muscle relaxants, hot packs; (3) manipulation and/or mobilization may be beneficial for muscle tension headache.

Is chiropractic care appropriate? **Yes, roughly half the time for acute low-back pain, which is on a par with appropriateness ratings of conventional medical procedures used for some other conditions (Shekelle et al., 1998).**

RAND researchers were the first to look at the quality of chiropractic care. They reviewed office records from chiropractors randomly selected in the United States and Canada to see if the care they gave patients for acute low-back pain was appropriate. *Appropriate* was defined as "expected benefits exceeding expected risks," the same rule normally used to assess other medical procedures. The RAND researchers found that treatment was appropriate for nearly half of the patients; uncertain for about a quarter of them; and inappropriate for the remaining patients. These ratings are not unlike the appropriateness ratings found for some conventional medical procedures.

Is chiropractic care expensive? **Yes, overall, for outpatient treatment. People cut their use of chiropractors in half if they have to pay part of the costs of care (Shekelle, Markovich, and Louie, 1995; Shekelle, Rogers, and Newhouse, 1996).** RAND researchers found that, on average, chiropractic care for outpatient treatment *per episode* of back pain is substantially more expensive than seeing a general practitioner. It is as expensive as seeing an orthopedist or an osteopath. (See Figure 1.) The average cost for a single chiropractic visit is less than the cost for other health care providers; however, patients require more visits to the chiropractor, and this drives up the per-episode cost. For example, a patient being treated for back pain might have an average of 10 visits with a chiropractor, compared to 5 visits with an orthopedist and 2 visits with a general practitioner. In this study, the researchers found major cost variations at the different study sites, and they caution about generalizing the findings to all of the United States.

Figure 1. Chiropractic Care for Ambulatory Back-Pain Patients Is Expensive



In a second study, RAND researchers found that people use chiropractors freely if their insurance covers all costs. However, if they have to pay a 25 percent or more co-payment, their use of this alternative health care drops by half.

Complementary and Alternative Medicine: Health Care out of the Mainstream

Chiropractic care is the most commonly used form of *complementary and alternative medicine*, or CAM. This field encompasses health care approaches that are neither taught widely in medical schools nor generally available in U.S. hospitals. The following box shows the wide range of health care interventions considered to be part of CAM.

CAM Interventions

- herbal medicine
- chiropractic
- spiritual healing
- megavitamins
- self-help group
- imagery
- commercial diet
- folk remedies
- lifestyle diet
- energy healing
- homeopathy
- hypnosis
- biofeedback
- acupuncture

The use of alternative medicine is common and growing, and people go to alternative medicine practitioners more often than they see primary care physicians (Figure 2). Nearly half of alternative medicine visits are to chiropractors.

RAND's pioneering analysis of spinal manipulation for low-back pain stimulated a national reassessment of other forms of CAM. In 1992, Congress established the National Center for Complementary and Alternative Medicine (NCCAM, initially the Office of Alternative Medicine). Its goal is to advocate for good science, objective information, and open, rational inquiry about health practices that are outside of mainstream medicine.

RAND provides technical support to NCCAM through its Southern California Evidence-Based Practice Center, one of twelve centers established nationwide by the Agency for Healthcare Research and Quality. RAND researchers have completed two studies for NCCAM on

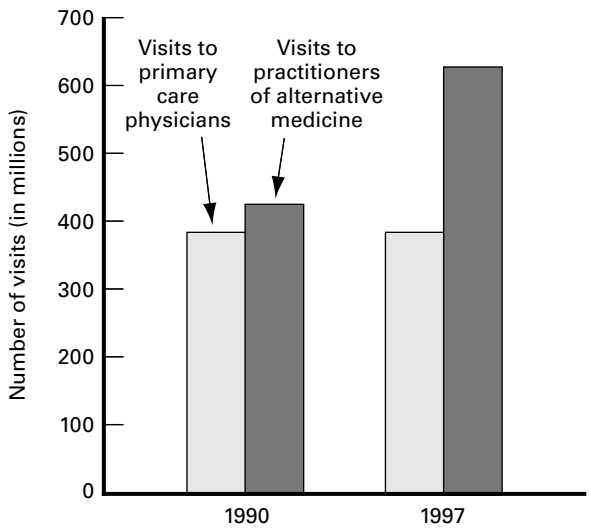
- mind-body therapies—such as biofeedback, guided imagery, and relaxation—used to treat gastrointestinal disorders
- Ayurveda—the widely practiced form of traditional Indian medicine—focusing on Ayurvedic herbs used in the treatment of diabetes.

They are also currently evaluating SAMe (S-adenosylmethionine)—a popular dietary supplement—for the treatment of depression, osteoarthritis, and chronic liver disease.

What Role Should Chiropractic Have in Health Care?

Where chiropractic fits in today's health care system is still unclear. The lack of high-quality studies reported in the medical literature makes it difficult to arrive at comprehensive conclusions about the value of chiropractic care. For example, RAND researchers could say only that spinal manipulation

Figure 2. Use of Alternative Medicine Is Common and Growing



benefits some people with acute low-back pain. They didn't find enough data from well-designed studies to say anything about chiropractic's value for chronic low-back pain or low-back pain that involves an irritated sciatic nerve; about the complication rate of chiropractic treatment; about the number of manipulations needed to get the maximum response; or about the cost-effectiveness of manipulation compared with other types of conservative care, such as some forms of physical therapy or even home self-care.

Future Research Needs

Rigorous, *randomized, controlled trials* are the key to understanding chiropractic's role in health care. These studies are the gold standard for producing unbiased data about a treatment. For these studies to be informative, patients in the trials should have the same kind of health problem, for example, clinically identical low-back pain. Researchers must use well-defined interventions and control treatments, and they should determine patient response to the treatment using the standard outcome measures used in other areas of medical research.

Furthermore, an accurate accounting of the costs of chiropractic care is needed in order to understand the cost-effectiveness of this health intervention compared to conventional medical care.

RAND Studies on Chiropractic: Selected Bibliography

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