The Chiropractic Report

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The Chiropractic Profession

Basic Facts, Independent Evaluations, Common Questions Answered

"The chiropractic profession is assuming its valuable and appropriate role in the health care system in this country and around the world. As this happens the professional battles of the past will fade and the patient at last will be the true winner."

Wayne Jonas, MD, Director (1995-1998), Office of Alternative Medicine, US National Institutes of Health, Bethesda, MD.[1]

A. Introduction

CHIROPRACTIC (Greek: treatment by hand) arose as a separate profession in the United States in the 1890s. In that era of heroic medicine many alternative disciplines emerged—chiropractic has been the strongest survivor.

Through to the 1950s the chiropractic profession remained in its early development stages—it was isolated, controversial, and largely North American. In the 1960s and 1970s controversy remained, but the foundations were being laid for broader mainstream acceptance of the profession, foundations such as:

- Educational standards and licensing examinations similar to medicine. (In many U.S. states chiropractors and medical doctors sat the same basic science examinations for licensure).
- The first significant research texts and scientific journals.
- Legal recognition and regulation in all US states and in various other countries.

2. Today, more than 100 years after its birth, chiropractic is taught and practised throughout the world and the profession has earned broad acceptance for its services, including its central art of spinal adjustment or manipulation. Evidence of this includes:

a) *Back Pain.* Since the 1990s evidence-based national clinical guidelines for the management of back pain, sponsored by governments in many countries including the UK,[2] US,[3] Denmark[4] and New Zealand,[5] and most recently European guidelines,[6] have endorsed the traditional chiropractic approach to management by recommending spinal manipulation and early activity for most patients. The expert panels for these guidelines, predominantly medical experts, have also included chiropractors.

Large multicentre trials supported by the British Medical Research Council and published by the *British Medical Journal* have reported that chiropractic management and skilled manipulation are more effective and cost-effective than usual or best medical care.[7,8] A UK Royal College of General Practitioners' guideline for the management of back pain, developed in partnership with the British Chiropractic Association, recommends to GPs that, in the absence of certain red flags, they consider referrals of patients with back pain for skilled manipulation.[9]

b) *Neck Pain and Headache.* Multidisciplinary expert panels in Canada,[10] and the US [11] have reviewed the current evidence on risks and benefits and specifically recommended cervical manipulation and mobilization for many patients with common categories of head and neck pain, including motor vehicle accident victims with Grades I-III whiplash-associated disorders.

There is now a clear anatomical basis for headache arising from dysfunction in the cervical spine, (cervicogenic headache), this being direct connective tissue bridges between the dura and the muscles and ligaments in the upper cervical spine, [12] and good RCT evidence of the effectiveness of chiropractic management. [13]

c) *General acceptance by medicine and nursing*. In 1997 the World Federation of Chiropractic, the international body representing national associations of chiropractors in 80 countries, was granted official relations by the World Health Organization (WHO) and WHO's

Table 1

Recent Developments in the Chiropractic World

- In the US, new federal legislation during 2002 to 2004 has introduced and funded chiropractic services in the military and veterans' administration health care systems, and expanded services for seniors under Medicare. The President's hospital, the National Naval Medical Center in Bethesda, now has a Chiropractic Department.
- Last year a major California study of 1.7 million members of an HMO demonstrated that adding a chiropractic benefit reduced overall health care costs for plan members.[45,46]
- Surveys continue to report that chiropractic is the most popular form of complementary medicine in the US—used annually by approximately 10% of US adults, principally for back and neck pain and headache and the impact of these spinal problems on overall health.
- In the UK a Medical Research Council multicentre trial has just demonstrated that it is both effective and cost-effective for back pain patients receiving "best medical care" to also receive chiropractic manipulation.[8]
- New evidence-based European Guidelines for the management of patients with acute and chronic back pain confirm earlier national guidelines in several countries in supporting skilled spinal manipulation as a recommended first line approach to treatment. [6]
- Following the Lannoye Report to the European Parliament in 1997, those countries in Europe that had not at that time recognized and regulated the practice of chiropractic are moving to do so – most recent legal recognition being in Belgium, France and Portugal.

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• In the past year the World Health Organization (WHO), as part of its formal strategy promoting the sound development and use of traditional and complementary medicine in national health care systems, has prepared guidelines concerning minimum standards of chiropractic education.[49]

• In the UK both accredited chiropractic schools are now affiliated with public universities – the Anglo-European College of Chiropractic with the University of Bournemouth, and the Welsh Institute of Chiropractic with the University of Glamorgan – and students from throughout the European Community are eligible for government funding for their studies. At the University of Southern Denmark in Odense chiropractic students now do their clinical training at the in-patient and outpatient clinics at the Funen Spinal Unit, the major spinal care hospital in Southern Denmark. In Latin America there are new university-based chiropractic schools in Brazil (2) and Mexico, with others soon to open in Argentina and Chile.

• In Canada chiropractic scientists, Greg Kawchuk, DC PhD of the University of Alberta and Mark Erwin, DC PhD of the University of Toronto have been awarded federally funded Canada Research Chairs. There are now three chiropractic scientists with appointments at the University of Toronto School of Medicine – Dr. Erwin, Dr. David Cassidy and Dr. Pierre Coté.

• In the Middle East, countries that have recently established licensing laws for chiropractic practice are Cyprus, Iran and the United Arab Emirates (UAE).

For references see page 8.

Table 2

CURRENT U.S. MEDICAL POLICIES ON CHIROPRACTIC

American College of Surgeons

• There are no ethical or collective restraints to full professional cooperation between doctors of chiropractic and medical physicians.

• Such cooperation should include Areferrals, group practice, participation in all health care delivery systems, treatment and services in and through hospitals, participation in student exchange programs between chiropractic and medical colleges, and cooperation in research and continuing education programs.

American Hospital Association

• The AHA Ahas no objection to a hospital granting privileges to doctors of chiropractic for the purposes of administering chiropractic treatment, furthering the clinical education and training of doctors of chiropractic, or having x-rays, clinical laboratory tests and reports thereon made for doctors of chiropractic and their patients and/or previously taken x-rays, clinical laboratory tests and reports made available to them upon (patient) authorization.

affiliated organization for national and international medical organizations, the Council of International Organizations of Medical Sciences (CIOMS). Acceptance was widely supported by the mainstream health care community.

The World Federation of Neurology, representing neurologists, affirmed that "the relationship between the medical and chiropractic professions worldwide has become increasingly one of mutual respect and collaboration." The International Council of Nurses and the World Federation of Public Health Associations offered similar letters of support. The WFPHA's largest member, the American Public Health Association, had by then established a formal Division of Chiropractic in recognition of the now significant role of chiropractors in public health programs. Today there are chiropractors at Harvard teaching hospitals and at the US National Institutes of Health.

What is the status and role of the chiropractic profession in health care systems in 2005? This Report now presents basic facts, the findings of government inquiries—in a world too full of unresearched opinions and partisan claims, the best government inquiries present the most reliable evidence—and then answers common questions that arise when other professionals discuss chiropractic.

B. Basic Facts

3. Chiropractic is now the third largest primary contact health care profession in the western world after medicine and dentistry. There are approximately 70,000 chiropractors in the United States, 10,000 in Japan, 6,000 in Canada, 2,500 in Australia, 2,000 in the United Kingdom and 100-1,000 in each of Belgium, Brazil, Denmark, France, Ireland, Israel, Italy, Mexico, New Zealand, Norway, South Africa, Spain, Sweden, Switzerland and The Netherlands.

The profession is established, though in smaller numbers, in other European countries, Asia, Africa, the Middle East and South America.

4. The profession has always offered a natural and conservative source of health care, avoiding drugs and surgery. There is an emphasis on the mind/body relationship in health and the natural healing powers of the body. This represents a biopsychosocial philosophy of health, rather than a biomedical one.

The main focus of chiropractic practice is the relationship between the function of joints, soft tissues and the nervous system (neuromusculoskeletal disorders) and the impact of these disorders on health. The spine is of central importance and the traditional chiropractic term for a spinal functional lesion is subluxation, discussed further below (in para 16).

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The principal treatment is joint adjustment or manipulation. Management also includes other manual techniques (e.g. mobilization, traction, and trigger-point therapy), rehabilitation exercises, patient education and lifestyle modification, and the use of physical therapy modalities and orthotics and other supports. There is also an emphasis on health promotion and early return to activities for injured patients. The focus on education and patient empowerment, as research now shows, is an important factor in the success of chiropractic management and the high level of patient satisfaction reported.[14-16]

5. **Law**. The practice of chiropractic is now recognized in all world regions. Regulation by legislation exists, for example, in Canada and the United Sates (North America), Costa Rica, Mexico and Panama (Latin America), Belgium, Denmark, Finland, France, Norway, Portugal, Sweden, Switzerland and the UK (Europe), Australia, Hong Kong and New Zealand, (Asia/Pacific), Cyprus, Iran, Saudi Arabia, United Arab Emirates, (Eastern Mediterranean) and Nigeria,

South Africa and Zimbabwe (Africa). In many other countries where the profession is established, practice is recognized and legal under general law.

Common features in all jurisdictions are primary care (direct contact with patient) and the right and duty to diagnose, including the right to perform and/or order diagnostic imaging.

6. **Education.** Common international standards of education have been achieved through a network of accrediting agencies that began with the US Council on Chiropractic Education (CCE), recognized by the US Office of Education since 1974.

Entrance requirements vary according to country, but are a minimum of three years university credits in qualifying subjects in North America. The chiropractic college undergraduate program has a minimum of 4 full-time academic years and is followed by postgraduate clinical training and/or licensing exams in many countries. Postgraduate specialties include chiropractic sciences, orthopedics, radiology, rehabilitation and sports chiropractic.

In former times most chiropractors graduated from North American colleges. There are now colleges in Australia, Brazil, Canada, Denmark, France, Japan, Korea, Mexico, New Zealand, South Africa and the UK as well as the United States. Depending upon the country chiropractic education is either within the university system (e.g. Australia, Brazil, Canada, Denmark, Mexico, South Africa and the UK) or in private colleges (e.g. France, Japan and the United States).

Government inquiries and independent investigations by medical practitioners have affirmed that chiropractic undergraduate training is of equivalent standard to medical training in all preclinical subjects.[17,18] This is now clear, for example, at the University of Southern Denmark in Odense where chiropractic and medical students take the same basic science courses together for three years before entering separate streams for clinical training. On contemporary faculties in chiropractic schools chiropractors are joined by appropriate basic science and medical specialists, whose absence in earlier times provided grounds for valid criticism of chiropractic education.

7. **Government and Third Party Funding**. The cost of chiropractic treatment is met fully or in part under government health care plans in the United States (Medicare, Medicaid, Military, Veterans' Affairs), Canada, Denmark, Norway, Sweden, Switzerland and the UK. In other countries there is funding for special populations—e.g. military veterans in Australia, and the armed services in Israel.

8. All modern government inquiries into chiropractic—the most thorough being in New Zealand (1979), Australia (1986), Sweden (1987) and Canada (1994)—have recommended government funding for chiropractic services. Workers are entitled to elect chiropractic care under workers compensation law in the United States, Canada, Australia and New Zealand.

There is generally private insurance funding for chiropractic care in all countries where the profession has become established—through managed care plans, employee benefit plans, motor vehicle insurance policies and otherwise.

C. Government Inquiries

9. All formal government inquiries into chiropractic during the past 25 years have found contemporary chiropractic health care safe, effective, cost-effective and recommended licensure and government funding. They have all criticized the level of antipathy and misinformation between the chiropractic and medical professions (with faults on both sides) and expressly called for cooperation in the interests of patients.

10. Government inquiries, like research, are of widely varying quality and some deserve little credibility. Of importance are the qualifications of the commissioners, the terms of reference, the procedures adopted for hearing and testing evidence, and the degree of opportunity to hear all relevant evidence. On these criteria the most comprehensive and detailed independent examination of chiropractic ever undertaken was that in New Zealand in 1978/79.

11. **New Zealand**. The Commission's 377-page report, *Chiropractic in New Zealand* [19] has obvious authority and balance. It followed judicial hearings then extensive investigations by the Commission in New Zealand, the United States, Canada, England and Australia. See Table 3 for principal findings.

At the commencement of its Report the Commission acknowledges frankly that it was "faced with a contest on the one hand between organized medicine, assisted by the physiotherapists, and on the other hand the chiropractors" and that "at the end of it all little could be said either for or against chiropractic that had not been placed before us". It then concludes:

"By the end of the Inquiry we found ourselves irresistibly and with complete unanimity, drawn to the conclusion that

Table 3

NZ Commission—Principal Findings

- Chiropractic is a branch of the healing arts specialising in the correction by spinal manual therapy of what chiropractors identify as biomechanical disorders of the spinal column. They carry out spinal diagnosis and therapy at a sophisticated and refined level.
- Chiropractors are the only health practitioners who are necessarily equipped by their education and training to carry out spinal manual therapy.
- General medical practitioners and physiotherapists have no adequate training in spinal manual therapy, though a few have acquired skill in it subsequent to graduation.
- Spinal manual therapy in the hands of a registered chiropractor is safe.
- The education and training of a registered chiropractor are sufficient to enable him/her to determine whether there are contra-indications to spinal manual therapy in a particular case, and whether the patient should have medical care instead of or as well as chiropractic care.
- Spinal manual therapy can be effective in relieving musculoskeletal symptoms, such as back pain and other symptoms known to respond to such therapy, such as migraine.
- In a limited number of cases where there are organic and/or visceral symptoms, chiropractic treatment may provide relief, but this is unpredictable, and in such cases the patient should be under concurrent medical care if that is practicable.
- Chiropractors do not provide an alternative comprehensive system of health care, and should not hold themselves out as doing so.
- In the public interest and in the interests of patients, there must be no impediment to full professional cooperation between chiropractors and medical practitioners.
- The responsibility for spinal manual therapy training, because of its specialised nature, should lie with the chiropractic profession. Part-time or vacation courses in spinal manual therapy for other health professionals should not be encouraged.

This issue of *The Chiropractic Report*, which updates a similar one four years ago, provides current, summary information on chiropractic for others in the health care system—physicians, nurses and other professionals, health care managers, and patients. Subscribers may photocopy the Report for use with them, or order additional original copies at .80 cents each plus shipping. For more information and orders visit www.chiropracticreport.com or contact Serena Smith at:

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modern chiropractic is a soundly-based and valuable branch of health care in a specialized area neglected by the medical profession."

The Commission, answering the basic question before it, recommended that there be government funding for chiropractic services.

12. **Australia**. In Australia a Medicare Benefits Review Committee[20] was established in July 1984 and asked by the Federal Minister for Health to "consider requests for extending the scope of Medicare (government-funded health) arrangements to provide benefits for certain paramedical services". These included chiropractic services.

All of the main findings of the New Zealand Report were accepted. In addition the Committee recommended funding for chiropractic in hospitals and other public institutions, saying:

"We are aware of the very considerable organizational and professional obstacles . . . orthodox practitioners and, indeed, some chiropractors may initially find the experience an uneasy one, but we consider the differences that currently exist to be unreasonable and efforts should be made to bridge the gap".

". . . the continuing schism between the two professions does little to help improve the health of the many Australians who might benefit from a joint chiropractic/medical approach to their problems"[20]

13. **Sweden**. A Commission on Alternative Medicine in Sweden reported on chiropractic in 1987. Sweden then had no legislation regulating the practice of chiropractic, had approximately 100 chiropractors educated in accredited colleges, and several hundred other practitioners and lay persons who called themselves "chiropractor".

• The Commission was comprised of representatives of government and education, one MD, and one chiropractor. It did not hold judicial hearings, but conducted detailed investigation of chiropractic education, had the scientific literature assessed by university medical faculty, and commissioned a demographic survey by Statistics Sweden. The Commission's findings were consistent with those in Australia and New Zealand. It reported:

• Chiropractors with the doctor of chiropractic (DC) degree "should become registered practitioners and be brought within the national insurance system in Sweden".

• "DCs follow a 4-5 year course of university level training . . . in its pre-clinical parts . . . found to be the equivalent of Swedish medical training". They have "competence in differential diagnosis" and should be regulated on a primary care basis.

• "Measures to improve cooperation between chiropractors, registered medical practitioners and physiotherapists are vital" in the public interest. [17]

Following this report the Swedish government passed legislation recognizing and regulating the chiropractic profession. Then, together with the governments from Denmark, Finland and Norway, it supported the establishment of a school of chiropractic at the University of Southern Denmark to provide a regional chiropractic college for students from those countries. Currently a Scandinavian College of Chiropractic in Stockholm has been established and is approaching full accreditation status.

14. **Canada**. In the industrialized province of Ontario, where chiropractors have been licensed by law since 1927 the government commissioned two studies of the profession in the 1990s.[16,21]

The first, by health economists Manga et al. from the University of Ottawa, reviewed all the international data on the management of back pain, from controlled trials to workers' compensation statistics. It reported in 1993 that, on grounds of comparative cost-effectiveness, safety and patient satisfaction there was "an overwhelming case in favour of much greater use of chiropractic services in the management of low-back pain."[16]

The government referred the Manga Report and many other issues of access and funding to a Ministry of Health Chiropractic Services Review Committee chaired by former Minister of Health Tom Wells. The November 1994 Wells Report endorsed the central findings of the Manga Report and recommended:

• "That on grounds of effectiveness, safety, patient satisfaction and public acceptance . . . chiropractic services should continue to be funded by the (government's) Ontario Health Insurance Plan."

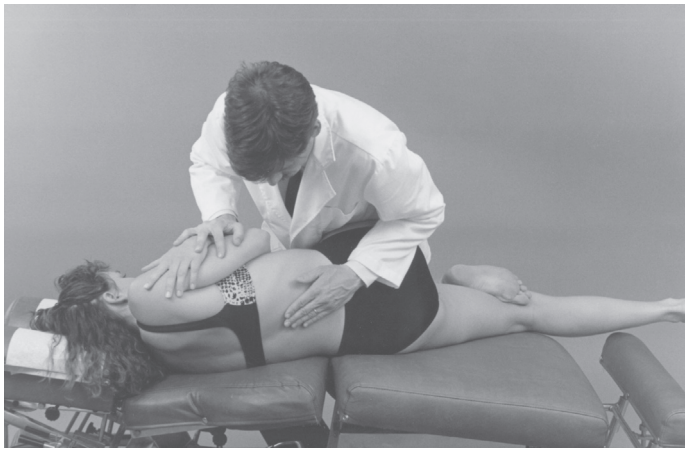
• That a number of financial and other barriers to access should now be removed, that university chiropractic education should be publicly funded on a similar basis to education for medical doctors and other recognized health professions, and that the government should now develop a formal health human resources (manpower) plan reflecting the now established role for chiropractic services.[21]

15. **United Kingdom**. Two important reports on chiropractic during the past decade have been the Kings Fund Report, which provided the basis for new legislation on chiropractic supported by the British Medical Association, and the report in 2000 from the House of Lords' Select Committee on Science and Technology titled *Complementary and Alternative Medicine*.[22] The latter accepted that chiropractic was a leading discipline complementary to medicine, with an important role in the UK health care system.

D. Common Questions

16. **The Chiropractic Subluxation**. Medical critics have sometimes alleged "the chiropractic subluxation (the spinal lesion that is one focus of chiropractic treatment) has no objective existence at all". This is said to be confirmed by the fact that medical radiologists cannot see such subluxations on x-ray. The position is complicated by the fact that modern medicine has a competing definition of 'subluxation'.

17. 'Vertebral subluxation' is the term given by chiropractors to an entity with these essential elements:



A patient positioned for a lumbar adjustment.
Courtesy of Tom Bergmann, DC

• Abnormal function (movement) in a spinal joint.

• Neurological and vascular involvement;

• Often, but not necessarily, a structural (static) displacement of a vertebra.

It is essentially a functional entity, involving restricted vertebral movement in one or more planes of motion, and unless there is structural misalignment is no more visible on x-ray than a limp or headache or any other functional problem.

18. The concept of subluxation is not unique to chiropractic. Its equivalents are the 'osteopathic lesion' in osteopathy, and the 'segmental blockage' of the European manual medical school.

On account of the confusion of terminology, and the artificial barriers to understanding this can create, many chiropractors today simply refer to 'spinal dysfunction' in interprofessional communications, or even with patients. There is irony in this as Terrett explains, because medical authors during the 18th and 19th centuries used subluxation in the chiropractic sense.[23] And during the past 10 years, during which there has been greatly increased cooperation between medicine and chiropractic in research and practice, many medical authors are again using the term subluxation as formerly. (See for example *Sacroiliac Subluxation: A Common Treatable Cause of Low Back Pain in Pregnancy* (1991) by Daly, Frame et al., physicians from the University School of Medicine, Rochester, New York who define and accept 'subluxation' in a manner completely consistent with chiropractic practice.)[24]

19. **Adjustment/Manipulation.** Chiropractors prefer the word 'adjustment' to 'manipulation' because it signifies something more controlled, specific and skilled – and is their own traditional language. It is not generally appreciated that the classic chiropractic adjustment techniques, although quick, are not forceful or violent. To quote the New Zealand Commission:

". . . it is alleged that (chiropractic) technique consists mainly of the 'dynamic thrust'. This is claimed to be dangerous because it is a sudden, high-velocity movement, the patient cannot see what is being done, cannot resist the thrust, and is therefore at the chiropractor's mercy.

"Until the Commission saw chiropractors at work, it imagined from such descriptions that this was the only way the chiropractor operated, while the physiotherapist, with gentle articulations, extension, or mobilization was a very different practitioner. The truth is that, while the chiropractor's movements are indeed often quick, perhaps more so than those of the physiotherapist, they are also usually small and precise. The most forceful manipulations we saw were performed by physiotherapists".[25]

20. **Chiropractic and Medicine—Incompatible or Complementary?** The zealous and unsupportable assertion of many early chiropractors was that the vertebral subluxation influencing the nervous system was the source of all or most disease. This is as historical as a then current medical technique, bloodletting with the leech. This skeleton in the chiropractic cupboard, rattled by a fringe movement of extremists as exists in any profession, has sometimes been a continuing barrier to understanding and cooperation between the chiropractic and medical professions.

The best proof for MDs that chiropractic today is a modern health science compatible with medicine is to meet a local chiropractor and observe his/her practice. The next best evidence is to talk to a colleague who has a settled inter-referral relationship with a chiropractor. At the individual level today there is widespread cooperation between chiropractic and medicine at all levels of education, research and practice. In many North American cities a large number of MDs and DCs practice in offices in the same health centre with close cooperation and inter-referral, often now in full and formal partnership.

21. Independent respected health science journals have always published chiropractic research. In recent years journals published/endorsed by medical associations have dropped their former editorial restrictions. For example:

a) In 1992 The American College of Physicians, in its *Annals of Internal Medicine*, published medical research into chiropractic manipulation for back pain. MDs were asked to reappraise the roles of spinal manipulation and the chiropractic profession because of "recent research favourable to the chiropractic treatment of patients with low-back pain".[26]

For the last 50 years use of spinal manipulation had been "labelled as unorthodox treatment by the medical profession" but new research demanded a change in attitude.

b) In the same year *The Journal of Family Practice*, endorsed by the American Academy of Family Physicians, in an article by Peter Curtis, MD and Jeffrey Bove, DC, PhD from the University of Chapel Hill, North Carolina encouraged family physicians to "re-evaluate their relationship with chiropractors" and provided guidelines for referral.[27]

Three perceived problems—the education of chiropractors, including ability to diagnose; lack of scientific evidence of effectiveness of chiropractic manipulation; and potential danger from manipulation, especially cervical manipulation—were answered and dismissed as unfounded.

22. In other countries than the U.S. there is a more established pattern of cooperation and inter-referral. Thus, for example:

a) In the United Kingdom, a survey of general medical practitioners in the 1980s showed that 50% had referred patients for non-medical spinal manipulation (chiropractors and osteopaths) during the past 12 months.[28] Today referral rates are significantly higher on account of the increased scientific evidence including the highly regarded and publicized MRC trials of chiropractic,[7,8] and the support of the British Medical Association [29] and the Royal College of General Practitioners.[9]

b) In Canada a 1989 study from the Faculty of Medicine, University of Toronto, reported that a clear majority (62%) of family medical practitioners were referring patients to chiropractors and that 1 in 10 (9.5%) of MDs in family practice were chiropractic patients themselves.[30] A 1990 survey in Saskatoon, a city then with 38 chiropractors, reported that 20% of all chiropractic practice related to neck and back pain patients referred by MDs.[31]

23. Notwithstanding these developments many MDs retain the impression that chiropractors have an incompatible approach to health care. One powerful source of this wrongful perception, now exposed in the courts but with continuing impact, has been the American Medical Association (AMA) and it should be known that:

• The AMA changed its ethics to allow referral in 1980 but continued a campaign to discourage cooperation.

• In the Wilk Case,[32] litigation between a representative group of chiropractors and the AMA and affiliated organizations, the AMA was found to have breached antitrust laws during 1966-1980 in conspiring to restrict cooperation between individual MDs and chiropractors in order to eliminate chiropractic as a competitor in the U.S. health care system. A patient care defence advanced by the AMA, alleging justifiable concerns about the

practice of chiropractic, failed. The court found itself obliged to make a direct ruling on credibility against the AMA on this matter.

• Significantly, in the present context, the court also found that the basis of the AMA's illegal boycott of chiropractic was the calculated portrayal of chiropractors as unscientific, cultist and having a philosophy incompatible with scientific medicine.

If you still have the feeling this may be true, you should reflect upon the sources of your information, and what direct evidence you have to contradict the findings of a number of detailed and independent government investigations.

24. **Over-treatment/Patient Dependency/Frequency of Treatment**. Some chiropractors over-treat and put their interests before those of their patients, but most do not—if they did there would not be the impressive evidence of cost-effectiveness (see para 26) and patient satisfaction[14-16] that exists. This problem exists for all professions. Points that can only be touched upon in the space available are:

• Figures worldwide show much fewer visits per patient than critics suppose. In Ontario, Canada, where government benefits were available for up to 22 treatments per annum during the 1990s, only approximately 10% of patients used that maximum each year.

• Some conditions require ongoing treatment, as in medicine and physical therapy. This is readily apparent if one thinks of the nature of spinal disorders and the impact of continuing with a lifestyle that aggravates them.

• The view that manipulation either works in one or two treatments or not at all, which came from the British medical approach in the 1960s, has now been rejected by everyone familiar with the literature and this field of practice. In the US a 1991 RAND expert panel, with a majority of medical specialists, concluded that:

"For acute, uncomplicated low-back pain, an adequate trial of spinal manipulation is a course of two weeks for each of two different types of spinal manipulation (four weeks total) after which, in the absence of documented improvement, spinal manipulation is no longer indicated".[33]

On a basis of three treatments per week this represents a course of 12 treatments for a patient with acute, uncomplicated low-back pain. If there is documented improvement care may continue, otherwise it should not. Management will typically also involve other interventions such as exercise and education.

25. **Conditions Treated**. Studies in North America, Europe and Australia report that approximately 80% of chiropractic practice is for musculoskeletal pain, with low-back pain the predominant presenting complaint. Another 10% is for headache, concerning which there is a growing body of research evidence of effectiveness.[34-36]

The remaining 10% includes a wide variety of disorders aggravated or caused in part by spinal lesions. This is the 10% that concerns many MDs who have little exposure to manipulative health care. Much needs to be said here, but central issues are:

• No responsible chiropractor today claims to cure organic disease through adjustment of the spine. There is no research to support such a claim. However, clinical experience suggests that vertebrogenic pain and subluxation play an often unsuspected role in many conditions.

• The claims of modern chiropractors in this area, and their clinical experiences, are shared by all professions engaged in spinal manual therapy—including medicine, osteopathy and physiotherapy.

Kunert, a West German cardiologist, prominent in the European manual medicine school in the 1950s and 1960s, gives case examples where the medical diagnoses were respiratory block and heart disease. On reference to his specialized unit, the primary causes were found to be vertebral problems, corrected by spinal manipulation. Following extensive clinical and research experience he concluded that "lesions of the spinal column . . . are perfectly capable of simulating, accentuating or making a major contribution to organic diseases. There can . . . be no doubt that the state of the spinal column does have a bearing on the functional status of the internal organs".[37]

• Lewit, a Prague neurologist who is the leader of the manual medicine movement in Europe and whose major text is available in English, writes at length of his experimental and clinical experience using spinal manipulation to treat patients with dysfunction in the spine and locomotor system and concomitant respiratory problems, heart disease, digestive problems, gynaecological disorders, migraine, vertigo/dizziness and other conditions.[38]

• Grieve, an English physiotherapist says:

"All those experienced in manipulation can report numerous examples of migrainous headaches, disequilibrium (vertigo), subjective visual disturbances, feelings of retro-orbital pressure, dysphagia, dysphonia, heaviness of a limb, extrasegmental paraesthesia, restriction of respiratory excursion, abdominal nausea and the cold sciatic leg being relieved by manual or mechanical treatment of the vertebral column; but, while these effects are noted, and the underlying mechanisms investigated with the purpose of understanding better what we do, they are insufficient reason to put the cart before the horse.

In other words, the prime impulse for physical treatment of the vertebral column is properly vertebral column disorder, and not visceral disorder".[39]

The final sentence reflects the chiropractic profession's approach—whatever the patient's complaint may be, the reason for manipulative care is the presence of a joint and/or soft-tissue dysfunction amenable to manipulation.

Recent Swedish and multinational studies of non-musculoskeletal changes reported by patients after chiropractic manipulation for back and neck pain suggested improvement of digestive disorders and dizziness/visual disturbances are the most common non-musculoskeletal benefits experienced.[40, 41]

26. **Cost Effectiveness**. The majority of chiropractic practice involves patients with back pain and neck pain/cervical headache, both of which are common and have a huge impact upon patients, employers, and society in terms of disability and cost.

Medical leaders such as the Glasgow orthopaedic surgeon Gordon Waddell, who was a principal consultant for the literature review for both the UK and the US back pain guidelines in the 1990s and is author of the highly respected text *The Back Pain Revolution,*[42] acknowledge that management of low-back pain has been "a 20th century health care disaster" and that "it is now time for a fundamental change in clinical management and reorganization of health care to meet the needs of these patients."

For patients with common or mechanical back pain and neck pain/headache there is now a change from extensive diagnostic testing, rest and medication for pain control, based on *structural pathology* as in traditional medical practice, to exercise, manual

treatments, early mobilization of patients and education about the spine and lifestyle, based on *functional pathology* as in traditional chiropractic practice. It is this new common understanding, arising from the research of the 1980s to 1990s, together with pressure from patients and payers, that underlies the new level of cooperation between the chiropractic and medical professions.

This management approach is not only effective but highly cost-effective. Summary comments on the evidence are:

a) *WCB Studies*. These suggest a 45-55% saving in overall costs—treatment costs and compensation for lost time—when patients comparable back pain choose chiropractic rather than medical treatment. The most thorough studies have been in Wisconsin (1978), Florida (1988), Utah (1991), and the State of Victoria, Australia (1992).[43]

b) *Best individual trial*. Perhaps the single strongest evidence from a clinical trial of the cost-effectiveness of chiropractic care, because of the quality and independence of the study, comes from the British multicentre trial comparing chiropractic and medical/physiotherapy management of patients with low-back pain.[7] In this trial, published in the *British Medical Journal* in 1990 Tom Meade MD, then Director of the Epidemiology Unit, Medical Research Council, and colleagues concluded:

• Chiropractic treatment was significantly more effective, particularly for patients with chronic (long-term) and severe pain and "the benefit of chiropractic treatment became more evident throughout the follow-up period" of two years. (In other words the benefits of chiropractic management were long-term, not temporary.)

• "The potential economic resource and policy implications of our results are extensive", so much so that now "consideration should be given . . . to providing chiropractic within the National Health Service either in hospitals or by purchasing chiropractic treatment from existing clinics." The economic analysis published with the trial results showed that the British government would have saved in excess of $20 million per annum just on the category of low-back pain patients included in the trial if care was given by chiropractors. A second Medical Research Council trial, just published by the BMJ, confirms the cost-effectiveness of adding chiropractic manipulation even where the patient has consulted a general practitioner and is getting "best medical care".[8]

c) *Best review*. The best overview of all the evidence is the Manga Report titled *A Study to Examine the Effectiveness and Cost-Effectiveness of Chiropractic Management of Low-Back Pain*.[16] This independent study by Canadian health economists commissioned by the Ontario government is by far the most comprehensive review of all the international evidence on cost-effectiveness to that time. Manga et al. found "an overwhelming case in favour of much greater use of chiropractic services in the management of low-back pain". With respect to a transferral of management from physicians to chiropractors in Ontario, Manga et al. suggest:

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

Workers' compensation studies report that injured workers with the same specific diagnosis of LBP returned to work much sooner when treated by chiropractors than by physicians. This leads to very significant reductions in direct and indirect costs."

d) *All neuromusculoskeletal (NMS) disorders.* The above evidence relates to back pain. There is now compelling evidence from US health economists analyzing data from managed care plans that chiropractic management provides substantial savings for patients with a broad range of neuromusculoskeletal complaints including neck pain and headache.[44-46]

In the important new study of four years' data from a large California HMO published in the AMA's *Archives of Internal Medicine* last October, the 700,000 plan members with chiropractic and medical benefits had lower overall costs per person than the 1 million plan members with identical medical benefits—but medical benefits only. The members with a chiropractic benefit elected to choose and substitute chiropractic care for a wide range of 654 ICD-9 codes covering NMS disorders such as spinal pain, rib disorders, neck pain and headache, extremity problems and myalgias and arthralgias.[45-46]

27. **Safety**. The two safety issues raised by medical associations at most inquiries into chiropractic practice have been the safety of treatment and risks from delayed diagnosis. Both alleged dangers have never been substantiated as significant and, in a chapter devoted to safety, the New Zealand Commission concludes that chiropractic treatment "is remarkably safe".

The one material risk associated with chiropractic treatment is vertebral artery injury following cervical adjustment causing stroke. The incidence and mechanisms have been well reported in the chiropractic literature since the 1970s. The risk is extremely remote—about .0001% or 1 case per million treatments. This is the figure given in the 1996 RAND Report on *The Appropriateness of Manipulation and Mobilization for Cervical Spine*[11] and by the foremost expert, neurologist Dr. Scott Haldeman, in a recent literature review in *Spine*.[47]

Terrett's revealing article *Misuse of the Literature by Medical Authors in Discussing Spinal Manipulative Injury*[48] reviews various cases where complications following medical manipulation were wrongly ascribed to chiropractors. He notes, in a pointed observation, that there is not a single example in the medical literature of a mistake the other way.

28. **Research**. In its earlier history the chiropractic profession failed to produce a reasonable volume of research. Chiropractors gave reasons that carried considerable force—such as major trial design problems that resulted in a dearth of clinical research in physical medicine generally, exclusion from public facilities and funding, and the financial priorities of survival and upgrading undergraduate education—but there was a neglect.

Over the last 20 years the profession has established a strong research presence for its size, and criticisms about lack of research are simply wrong. There is now an international network of full-time researchers, many with PhDs and cross-appointments with health science universities, strong funding within the profession, and a new era of cooperation with medical and basic science researchers.

The depth of chiropractic research can be assessed by reading peer-reviewed journals such as the *Journal of Manipulative and Physiological Therapeutics* (JMPT), published by Elsevier, and the proceedings of major scientific meetings. These meetings are held regularly by organizations such as the Foundation for Chiropractic Education and Research (annually) and the World Federation of Chiropractic (biennially).

E. Conclusion

30. In 1979 the New Zealand Commission of Inquiry, after looking at the matter more thoroughly than anyone before or since, decided that the history of opposition of organized medicine to chiropractic was based on three main factors—the history of chiropractic, lack of knowledge coupled with misinformation about modern chiropractic theory and practice, and unprofessional conduct by some chiropractors.

Since that time many developments have led to new common ground. There are, however, continuing misunderstandings. This review seeks to dispel them and give impetus to the growing integration of chiropractic and medical services—an integration and mutual respect much longed for by patients. TCR

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