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), National Center for Complementary and Alternative Medicine, US National Institutes of Health, Bethesda, MD.[1]

A. Introduction

CHIROPRACTIC (Greek: done by hand) is a health care profession concerned with the diagnosis, treatment and prevention of disorders of the neuromusculoskeletal system and the effects of these disorders on general health. There is an emphasis on manual techniques, including joint adjustment and/or manipulation, with a particular focus on joint subluxation/dysfunction.[2]

Chiropractic arose as a separate profession in the United States in the 1890s. Until the 1950s the profession was in its early developmental stages and largely North American. In the 1960s and 1970s the foundations were laid for broader mainstream acceptance of the profession – improved educational and licensing standards, significant research texts and scientific journals, and legal recognition and regulation in all US states and various other countries.

Today, more than 110 years after its birth, chiropractic is taught and practiced throughout the world and the profession has earned broad acceptance from the public and in national health care systems for its services, including its central art of spinal adjustment/manipulation. It is widely regarded as the leading example of a complementary health care discipline reaching maturity and mainstream acceptance, and the World Health Organization (WHO) has now published guidelines recommending minimum educational standards for the regulation of chiropractic services within national health care systems.[3]

2. Dr. Wayne Jonas, quoted above, was like most medical doctors when in 1995 he was appointed Director of the NIH Office responsible for US government-funded analysis of and research into the main complementary and alternative medicine (CAM) professions, including chiropractic. He knew little about the chiropractic profession, had a firm prejudice against chiropractors from his medical school background, and referral of a patient by him in his medical practice to a chiropractor "was simply not in my repertoire of care".[1]

However, working with the profession and its research agenda at the NIH "gradually my prejudice was softened", he reports. He next received chiropractic treatment for neck pain, and later found and began referring patients to a network of doctors of chiropractic in his area. Within five years he was willing to say:

"I have seen at all levels the truth of the statement by the Agency for Health Care Policy and Research report that '*chiropractic has undergone a remarkable transformation*.' So have I."[1]

In 2008 many other medical leaders and organizations have undergone a similar change of attitude, and continuing research and patient demand have fuelled a rapid integration of chiropractic and medical services in the US and many other countries. See Table 1 and the rest of this Report for examples.

3. Despite this, however, much bias and prejudice remain. As Jonas says "deep prejudice is hard to change". This is particularly true where economic interests are at stake – which is very much the case in chiropractic and medical treatment of patients with the common

Table 1

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.

complaints of back and neck pain and headache.

One of the most prolific critics of chiropractic today is the physical medicine and rehabilitation specialist Edzard Ernst, MD PhD, from the UK, whose new book *Trick or Treatment: Alternative Medicine on Trial* is at present being heavily marketed in the UK and North America. He, like others, uses unscientific and anecdotal evidence to suggest to other health professionals (in medical journals) and the public (in interviews and books) that chiropractic manipulation, including neck manipulation is dangerous and inappropriate. This is completely wrong on the scientific evidence, which finds such treatments to be fully safe, appropriate and a recommended first option for treatment for patients with the most common forms of neck pain and back pain.[4] His work is dismissed by respected medical authorities such as orthopedic surgeon and back pain authority Gordon Waddell and as "interprofessional confrontation under the guise of scientific objectivity."[5]

However, many people considering their treatment options, and many health professionals advising them, will have concerns about the safety, effectiveness and the role of chiropractic care because of outspoken and seemingly knowledgeable critics such as Ernst.

So, what is the status and role of the chiropractic profession in health care in 2008? This Report now presents basic facts, the findings of government inquiries - in a world too full of un-researched 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.

Table 2

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.
- 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.
- 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 in 2005, 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 .85 cents each plus shipping. For more information and orders visit www.chiropracticreport.com or contact Serena Smith at:
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B. Basic Facts

4. **Principles and Practice.** The relationship between structure, especially of the spine and musculoskeletal system, and function, especially as coordinated by the nervous system, is central to the profession's approach to treatment, health and well being. Philosophically 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.

Research demonstrates that the primary reasons patients consult chiropractors are back pain (approximately 60%), other musculoskeletal pain such as neck pain, shoulder, extremities and arthritic pain (20%) and headaches including migraine (10%). About 1 in 10 (10%) present with a wide variety of conditions caused, aggravated or mimicked by neuromusculoskeletal disorders (e.g. cervicothoracic angina, dysmenorrhoea, respiratory and digestive dysfunctions). 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.[6-8]

5. **International Growth**. Although the chiropractic profession was first established in North America, and is still most populous there, with approximately 75,000 doctors of chiropractic (DCs) in the US and 8,000 in Canada, it is now established in over 100 countries and in all world regions. It is particularly well established in Europe, and in countries such as Denmark, Norway and Switzerland it is more integrated into mainstream health care services than in North America.

National associations of DCs in 90 countries are members of the World Federation of Chiropractic (WFC – www.wfc.org), a non-governmen-

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tal organization in official relations with the World Health Organization. Regional organizations include the European Chiropractors' Union (ECU – www.chiropractic-ecu.org) and the Latin American Federation of Chiropractic (FLAQ – www.flaq.org).

6. **Law.** The practice of chiropractic is regulated by law in some 40 national jurisdictions. Regulation by legislation exists, for example, in North America (Canada, United States), Europe (Belgium, Denmark, Finland, France, Italy, Norway, Portugal, Sweden, Switzerland and the UK), Australasia (Australia, China, New Zealand, Thailand), Latin America (Costa Rica, Mexico, Panama), the Eastern Mediterranean (Cyprus, Iran, Saudi Arabia, United Arab Emirates) and Africa (Botswana, Namibia, Nigeria, South Africa, Zimbabwe). 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.

7. **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. These standards have been adopted by the World Health Organization in the *WHO Guidelines on Basic Training and Safety in Chiropractic.*[3]

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, nutrition, orthopedics, radiology, rehabilitation and sports chiropractic.

Table 3 summarizes the subjects taught in a typical chiropractic undergraduate education program.

In former times most DCs graduated from US colleges, but there are now more educational programs in other countries (22) than in the US (18). Whereas most chiropractic schools in the US are in private colleges, most internationally are within the university system (e.g. Australia, Brazil, Canada, Denmark, Japan, Korea, Mexico, South Africa, Spain, Switzerland, the UK).

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.[9,10] 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.

8. **Research.** A main reason for the increased growth and success of the chiropractic profession during the past generation has been research establishing the effectiveness and cost-effectiveness of its services. This has been for chiropractic in general but also specifically for spinal manipulation – which used to be considered of doubtful value by many in the medical profession, but is now of proven benefit. Therefore for example in the two dominant areas of chiropractic practice:

a) *Back Pain*. Since the 1990s evidence-based national clinical guidelines for the management of acute and chronic low-back pain, prepared by expert interdisciplinary panels in the US,[11] UK,[12] and various other countries,[13,14] have recommended spinal manipulation, early activity and patient education as an appropriate first line of management for patients with non-specific or common mechanical back pain. Spinal manipulation has now been recommended also in European Back Pain Guidelines,[15] and, most recently, in practice guidelines from the American College of Physicians and American Pain Society published last year.[16]

Large multicentre trials supported

Table 3. WHO Guidelines – Sample four-year, accredited chiropractic education

Category I (A) Subjects taught in a typical semester-based chiropractic program, by year and number of hours

Division	*First year (hours)*	*Second year (hours)*	*Third year (hours)*	*Fourth year (hours)*
Biological Sciences	Human Anatomy (180) Microscopic Anatomy (140) Neuroanatomy (72) Neuroscience I (32) Biochemistry (112) Physiology (36)	Pathology (174) Lab Diagnosis (40) Microbiology & Infectious Disease (100) Neuroscience II (85) Nutrition (60) Immunology (15)	Lab Diagnosis (32) Toxicology (12)	Clinical Nutrition (26) Community Health (40)
Clinical Sciences	Normal Radiographic Anatomy (16) Radiation Biophysics and Protection (44)	Intro. Diagnosis (85) Intro Bone Pathology (48) Normal Roentgen, Variants & Roentgenometrics (40)	Orthopaedics & Rheumatology (90) Neuro. Diagnosis (40) Diagnosis & Symptomatology (120) Differential Diagnosis (30) Radiological Technology (40) Arthritis & Trauma (48)	Clinical Psychology (46) Emergency Care (50) Child Care (20) Female Care (30) Geriatrics (20) Abdomen, Chest & Special Radiographic Procedures (40)
Chiropractic Sciences	Chiropractic Principles I (56) Basic Body Mechanics (96) Chiropractic Skills I (100)	Chiropractic Principles II (60) Chiropractic Skills II (145) Spinal Mechanics (40)	Chiropractic Principles III (42) Clinical Biomechanics (100) Chiropractic Skills III (145) Auxiliary Chiropractic Therapy (60) Introduction to Jurisprudence & Practice Development (16)	Integrated Chiropractic Practice (90) Jurisprudence & Practical Development (50)
Clinical Practicum	Observation I (30)	Observation II (70)	Observation III (400)	Internship (750) Clerkships: Auxiliary Therapy (30); Clinical Lab (20) Clinical X-ray: Technology (70); Interpretation (70) Observer IV (30)
Research			Applied Research & Biometrics (32)	Research Investigative Project
Totals	914	962	1207	1382

***Total hours of full-time study over four years:* 4465 plus research project**

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.[17,18] 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.[19]

b) *Neck Pain and Headache*. In the 1990s multidisciplinary expert panels in Canada,[20] and the US [21] 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.

Those reviews have recently been updated by the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and its Associated Disorders, an international expert panel led by neurologist Scott Haldeman, MD DC PhD from the University of California at Irvine. In its report, published in the two leading Spine journals *Spine* [22] and *The European Spine Journal,*[23] described as a "major milestone for musculoskeletal science" that will have "a significant impact on the way in which neck pain is perceived, treated and studied around the world", manipulation and mobilization are recommended as safe, effective and appropriate treatment approaches for most patients with disabling neck pain (Grade 2 under the Task Force's new classification) whether traumatic or non-traumatic in origin. (For further comment on safety see para 21 on page 7).

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, [24] and good RCT evidence of the effectiveness of chiropractic management. [25]

C. Government Inquiries

9. All formal government inquiries into chiropractic since the 1970s 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. **New Zealand.** 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.

The Commission's 377-page report, *Chiropractic in New Zealand* [26] had 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 some of the principal findings.

At the commencement of its Report the Commission acknowledged 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 concluded:

"By the end of the Inquiry we found ourselves 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 neglected by the medical profession."

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

11. **Australia.** In Australia a Medicare Benefits Review Committee [27] 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, and the Committee noted "... 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"[27]

12. **Sweden.** In Sweden in 1987, at a time when there was no legislation regulating the practice of chiropractic and the problem of both formally and informally trained persons practising under the title of 'kiropractor', a government commission conducted a detailed investigation of chiropractic education, had the scientific literature assessed by university medical faculty and members commissioned a demographic survey by Statistics Sweden. The Commission reported that those with a doctor of chiropractic (DC) degree "should become registered practitioners and be brought within the National Insurance system in Sweden" – which subsequently happened.

It also found that "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. Consistent with what was said in New Zealand and Australia, the Commission said that "measures to improve cooperation between chiropractors, registered medical practitioners and physiotherapists are vital" in the public interest. [9]

A patient positioned for a lumbar adjustment.

Courtesy of Tom Bergman, DC

13. **Canada.** In the Province of Ontario, where doctors of chiropractic have been licensed by law since 1927, the government commissioned two studies of the profession in the 1990s.[8,28] The first, by health economists Manga et al. from the University of Ottawa, reviewed all international data on the management of back pain and reported 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."[8]

The government referred the Manga Report and other issues relative to chiropractic integration into health care services to a Ministry of Health Chiropractic Services Review Committee. In its November 1994 report the CSRC recommended that various financial and other barriers to access to chiropractic services in Ontario be removed, that university chiropractic education should be publicly funded, and that the government should develop a formal health human resources (manpower) plan reflecting the now established role for chiropractic.[28]

14. **United Kingdom.** Two important reports on chiropractic since the early 1990s 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*.[29] 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

15. **The Chiropractic Subluxation**. Medical critics have sometimes alleged that 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'.

Subluxation is the term given by chiropractors to an entity with these essential elements:

- 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.

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.[30]

16. **Chiropractic and Medicine — Incompatible or Complementary?** The zealous 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 been a continuing barrier to understanding and cooperation between the chiropractic and medical professions.

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. Summary points on the greatly increased integration of chiropractic and medical services are:

a) This trend began in the US over 15 years ago in 1992 when the American College of Physicians, in its influential *Annals of Internal Medicine*, first published research supporting spinal manipulation and asking MDs to reappraise the role of the chiropractic profession.[31] 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 also encouraged family physicians to "re-evaluate their relationship with chiropractors" and provided guidelines for referral.[32]

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.

b) Under new US Federal legislation since 2002 chiropractic services have been introduced and funded throughout the military and veterans' administration health care systems. The National Naval Medical Center in Bethesda, the President's hospital, has had a Chiropractic Department for the past 10 years. The prominent CAM researcher David Eisenberg, MD MPH has led the integration of chiropractic and medical services within the Harvard University teaching hospitals. The US was only one of many countries that had DCs as part of their sports medicine teams for last month's Beijing Olympic Games.

c) Such integration of chiropractic and medical services is seen in many other countries. It is more established than in North America in countries such as Denmark and Switzerland where chiropractors are educated in publicly-funded universities, where they share many of their pre-clinical courses with medical students (University of Southern Denmark and University of Zurich), and where there is general funding for chiropractic services within the public health care system.

17. 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,[33] 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 DCs in order to eliminate chiropractic as a com-

petitor 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 independent government investigations and the experience of many prominent medical leaders now working in integrated care environments.

18. **Over-treatment/Patient Dependency/Frequency of Treatment**. Some DCs 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 20) and patient satisfaction[6-8] 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".[34]

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.

19. **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.[35-37]

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:

a) 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.

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

Lewit, a Prague neurologist who has been the leader of the manual medicine movement in Europe since the 1970s 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]

c) Although much more research is required before definite claims can be made, there are now randomized controlled trials reporting sound clinical results following chiropractic adjustment of patients with conditions as diverse as hypertension[39] and irritable baby syndrome.[40] It must be emphasized that this is for sub-groups of patients with clearly restricted spinal motion at relevant spinal levels. The prime reason for chiropractic treatment of the spine or vertebral column is always a spinal functional disorder, not a visceral disorder.

20. **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 Waddell, who was a principal consultant for the literature review for both the UK and the US national back pain guidelines in the 1990s and is author of the highly respected text *The Back Pain Revolution,* acknowledge that management of low-back pain was "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."[44]

For patients with common or mechanical back pain and neck pain/headache there is now a change from extensive diagnostic testing, rest, medication for pain control and surgical intervention 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 payors, 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) *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*.[8] 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. note:

"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."

b) *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.[45-47]

In an important recent study of four years' data from a large California HMO published in the AMA's *Archives of Internal Medicine*, 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.[46-47]

21. **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 concluded that chiropractic treatment "is remarkably safe". Support for that conclusion for both neck and low-back manipulation is found in the recent expert systematic reviews already referred to.

The one area of concern that requires more detailed comment here, because media debate based upon individual and anecdotal cases of stroke has raised both public and medical concern, is the risk of vertebrobasilar artery injury leading to stroke (VBA stroke) associated with neck manipulation. Summary observations are:

a) The risk of VBA stroke associated with chiropractic cervical or neck manipulation is extremely remote – this is a rare form of stroke. The generally quoted and accepted risk rate since a RAND Corporation report on the subject in 1996 has been one case per million treatments or .0001%.[21]

b) The recent BJD Neck Pain Task Force already mentioned has provided the first definitive evidence on actual risk rate and causation. Cassidy, Boyle et al. analyzed a Canadian government database covering over 109 million person years that recorded all primary medical care provider (PCP) and chiropractic (DC) visits and all VBA stroke admissions in the Province of Ontario for the eight years from April 1993 to March 2002.

Using case control and case crossover comparisons, they report that the very slightly increased VBA stroke risk rate for neck pain patients consulting a PCP or DC, as opposed to the general risk rate in the community, is exactly the same whether the patient receives medical care from a PCP or chiropractic neck manipulation from a DC. This is so if one looks at the data at one day, one week or four weeks after the medical or chiropractic treatment received.[48]

Cassidy, Boyle et al. conclude that the similar but very slight increased risk of VBA stroke "is likely due to patients with headache and neck pain from VBA dissection seeking care before their stroke. We found no evidence of excess risk of VBA stroke associated with chiropractic care compared to primary care." They explain that any motion can lead to stroke where there has already been damage to a vertebral artery and the foundation for stroke has been laid – "a chiropractic manipulation or even simple range of motion examination by any practitioner" can lead to release of an embolus and stroke. In these circumstances stroke is 'associated with' rather than 'caused by' the examinations or treatments.

c) It is now known from case reports in the international literature that many trivial movements are associated with VBA stroke – such as turning the head to reverse a vehicle and looking up to see an object or while painting the ceiling.[49] In contrast, millions of athletes and others expose their necks to sudden and often violent movements daily without experiencing any problems. Think of what you see in boxing rings or on football fields or in hockey arenas. There are many neck movements in sports, vehicle driving and other activities of daily living involving much greater forces than turning to reverse a car or receiving joint manipulation.

The best research on actual forces reaching the vertebral artery during neck manipulation, from Walter Herzog, PhD and colleagues at the University of Calgary, reports that the force is no greater than that experienced during normal range of motion, diagnostic testing as commonly employed by MDs, DCs and PTs.[50] Herzog et al. conclude, as does the BJD Neck Pain Task Force, that by any standards neck manipulation is a safe treatment.

E. Conclusion

22. 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 desired by patients. TCR

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