JOB ANALYSIS OF CHIROPRACTIC IN CANADA

A project report, survey analysis,
and summary of the practice of
chiropractic within Canada

Published by the

NATIONAL BOARD OF CHIROPRACTIC EXAMINERS
INTERNATIONAL DIVISION
901 54th Avenue • Greeley, Colorado • (303) 356-9100

1993

National Board of Chiropractic Examiners

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ISBN 1-884457-02-9

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Acknowledgments

The National Board of Chiropractic Examiners wishes to express appreciation to Mark Christensen, Ph.D., and members of the NBCE Steering and Advisory committees, who helped guide the NBCE Job Analysis of Chiropractic project from its inception. Appreciation is also extended to those doctors of chiropractic who contributed their time, expertise, and feedback to early versions of the survey instrument, and to the more than 500 Canadian chiropractors who completed the final *Survey of Chiropractic Practice in Canada.*

In addition, thanks are expressed to Paul Townsend, D.C., for his commendable contribution to the research, development, and administration of the survey instrument. Dr. Townsend worked with the survey instrument format and design through several revisions which are outlined in this report. Special appreciation is expressed to Delle Morgan and Yvonne Sieve for their roles in the writing, editing, and desktop publishing of this report; to Debora Beeman for her assistance and support; and to Ray Townsend, D.C., Greg Crawford, D.C., and grammarian Miriam Marshall for their valued critiques at various stages of the production. Special appreciation is also expressed to Jim zumBrunnen for his statistical calculations.

The NBCE would also like to thank Doug Lawson, D.C., director of special projects for the Canadian Chiropractic Examining Board, and André Audette, D.C., past chairman of the Canadian Federation of Chiropractic Regulatory Boards for their support in modifying and administering the *Survey of Chiropractic Practice in Canada.* Without their participation and enthusiasm in this project, the Canadian job analysis would not have been possible.

Appreciation is also expressed to the directors and staff members of the Canadian Federation of Chiropractic Regulatory Boards, the Canadian Chiropractic Association, and librarian Valda Svede at the Canadian Memorial College of Chiropractic, all of whom provided information pertaining to various materials presented in this report.

Frank G. Hideg, Jr., D.C., President
National Board of Chiropractic Examiners

PREFACE

Presented in this book are analyzed data collected by the United States National Board of Chiropractic Examiners (NBCE), with the assistance of the Canadian Chiropractic Examining Board (CCEB) and the Canadian Federation of Chiropractic Regulatory Boards, in its *Survey of Chiropractic Practice in Canada.*

As a well-established independent testing agency, NBCE applied proven testing industry guidelines throughout each phase of this survey project, called a job analysis. In doing so, we sought to provide the Canadian chiropractic health care field with the most credible, relevant, and accurate reference possible, one which documents chiropractic as it is defined by those who practice it as a full-time profession.

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These objectives have been met through the collective effort of those involved. Members of our staff, members of the NBCE Job Analysis Steering and Job Analysis Advisory Committees, members of the CCEB and the Canadian Federation of Chiropractic Regulatory Boards, chiropractic faculty, private practitioners, statisticians, editors, and a host of other professionals helped produce a survey instrument of outstanding quality. A gratifying survey response from members of the profession served to further validate the survey's statistical data base.

It is this exhaustive commitment to excellence that so often distinguishes our profession. And it is largely what distinguishes this report, making it one which may have far-reaching significance in chiropractic health care in Canada for many years to come.

Sincerely,

Mark G. Christensen

Mark G. Christensen, Ph.D.
Director of Testing
National Board of Chiropractic Examiners

Introduction

The chronology of testing and measurement can be traced to the beginning of recorded history. Such early writings describe rituals that gauged the wisdom, physical endurance or bravery of various tribal members.

At one time or another, through one form or another, mankind has always devised a means of studying the world in which we live. We observe and surmise, prove and disprove, amass and dissect. We measure, we document and we formulate principles upon which scientific and sociological changes sometimes come to be based.

Over the years, as the consequences of studies have become more weighty and the procedures and results increasingly scrutinized, strict guidelines for obtaining the maximum in testing validity and consistency were developed. Today, these guidelines are established and refined by various independent testing organizations, as well as by both the Canadian and United States governments.

Although there could be no "right" or "wrong" answers to the survey which formed the basis of this report, the testing and measurement guidelines followed were necessary to obtain valid and reliable data. In short, only through strict adherence to government and industry guidelines can a survey project, such as this job analysis, gain the desired validity and credibility. In its role as a national and international testing agency for the chiropractic profession, the National Board of Chiropractic Examiners (NBCE) in the United States adheres to these guidelines, which enable testing agencies to prepare and administer fair, uniform, and valid tests and measurements.

In addition to the NBCE job analyses performed in the United States and Canada, similar studies have also been conducted by the NBCE in Australia and New Zealand at the request of the chiropractic leadership in those countries. The NBCE designed, administered, and funded the multi-national Job Analysis of Chiropractic projects as a service to the profession worldwide.

Organization of the Report

While compiling data from the *NBCE Job Analysis of Chiropractic in Canada*, the authors were committed to providing comprehensive and accurate documentation of every aspect of the job analysis project. Repeatedly surfacing during the compilation process was the awareness that the readership of the report might well include individuals with a wide range of backgrounds and purposes, and with varying degrees of

familiarity with the fields of chiropractic and/or testing and measurement. This prevailing awareness affected the construction of the report in both content and format.

At every step, the authors presented the relevant data, then stepped back to assess whether the body of information offered previously in the text was sufficient to afford and facilitate comprehension by a full range of readers. In many cases, the authors resolved this question by including clarifying background information which had been presumed unnecessary at the outset of the project.

Additionally entering into the decision to include some passages of text was the need to fully acquaint the reader with the licensed practitioners of chiropractic, since these individuals collectively provided the data upon which the job analysis report is based. Thus, the authors and editors have attempted to present an objective and well-rounded picture of the present-day chiropractor and his/her practice. Also addressed is the historical background of the profession, and current information including academic requirements for becoming a licensed chiropractor.

The information was often presented as a general overview, followed by a more detailed topical discussion presented chronologically. Information was conveyed through visual means where appropriate. A glossary of terms can also be found in an Appendix of this report.

The first two chapters serve to familiarize the reader with chiropractic* and its practitioners, including the personal, educational, and professional criteria these individuals met in becoming *licensed practitioners of chiropractic*. Also presented briefly is a collection of major government inquiries, studies, or rulings conducted in recent years relative to chiropractic. By providing the information in these chapters, the authors demonstrate why the chiropractic practitioner -- and only the chiropractic practitioner -- is qualified to provide the data which forms the job analysis of chiropractic.

Chapter 3 provides background information relative to the regulation of occupational licensing. The reader is acquainted with licensure and certification testing, as well as the legal aspects that shape regulatory agency requirements. In addition, a brief summary of the chiropractic licensing requirements for each province is presented.

In chapter 4 are the procedures followed in the development of the survey instrument. This chapter discusses the process of planning, development, and research protocols observed in the job analysis project, from committees to field tests to the gathering of data, and to the design of the final survey.

Chapter 5 describes the method and factors utilized in compiling the survey mailing list, tracking all components, tabulating the data, etc. Additionally, a number of steps were taken to encourage a high rate of response which typically enhances the validity of study data. These are presented in this chapter.

* "Chiropractic" is generally used as a noun, although it may appear to be an adjective in many contexts.

Chapter 6 provides an overview of the respondent chiropractors, patient demographics, and respondent comments as written on the survey form. Included is a summary of conditions, treatments, and activities. The subsequent chapters provide a detailed breakdown of the characteristics of the "typical" chiropractic practitioner (Chapter 7) and the "typical" chiropractic patient (Chapter 8) as indicated by the survey response data.

Chapter 9 summarizes the response data relative to the activities performed by the practitioners participating in the survey, the estimated frequency of performance and the perceived risk to patient welfare should the activity be omitted or performed poorly. Also, included are various adjustive and non-adjustive procedures. Chapter 10 presents survey response data on a province-by-province basis. These data are unweighted (raw) as opposed to the weighted data presented previously in the text.

Included in the Appendices are relevant forms and correspondence, the Survey of Chiropractic Practice in Canada, a glossary of terms, an index, and a listing of Canadian survey participants.

* * *

Chapter 1
The Chiropractic Profession

Chiropractic is one of health care's fastest growing professions, partly because of its remarkable effectiveness, and partly because chiropractic typifies a growing trend toward natural, drugless, and non-surgical methods of treatment.

Principles common to chiropractic can be found in the writings of Hippocrates (460-370 BC), Galen (130-200 AD), and even in ancient manuscripts of the Egyptians, Hindus, and Chinese. Examples of manual medicine appeared in the seventeenth and eighteenth centuries when "bonesetters" were used to treat sprains and dislocations.

Chiropractic's place in modern health care is largely attributed to Daniel David Palmer, a Canadian from Port Perry, Ontario, who founded the first chiropractic college in Davenport, Iowa in 1895. Palmer's son, Bartlett, succeeded his father in the development and growth of the chiropractic profession.

The Chiropractic Philosophy

Chiropractic offers a natural, conservative, medication-free, and non-invasive approach to the restoration and maintenance of health. The original chiropractic philosophy began with the principle that an individual's health is determined largely by the nervous system and that interference with this system impairs normal functions and lowers resistance to disease.

Chiropractic is also based on the premise that the body is capable of achieving and maintaining health through its own natural recuperative powers, provided it is given proper food, water, adequate rest, exercise, clean air, adequate nutrition, and a properly functioning nervous system. The Council on Chiropractic Education (CCE) in Canada defines chiropractic as:

> "... the science which concerns itself with the relationship between *structure*, primarily the spine, and *function*, primarily the nervous system, of the human body as that relationship may affect the restoration and preservation of health."

Chiropractic Case Management

Doctors of Chiropractic (DCs) address various physiological and biomechanical aspects of health, including structural, spinal, musculoskeletal, neurological, vascular, nutritional, emotional, somatic, and environmental relationships. The study of chiropractic includes the

mechanisms involved in compression, stretching, irritation, and resulting aberrant reflex pathways of the nervous system.

Case management of these problems may include, but may not be limited to, such procedures as adjustment and manipulation of the spinal column, and/or joints and adjacent tissues of the human body. In many cases, spinal X-rays, and other diagnostic procedures are used to identify the source of a patient's complaint, along with physical examination and questions concerning medical history, dietary habits, and lifestyle.

Central to chiropractic is the corrective structural adjustment or manipulation of spinal vertebrae or pelvic segments which have become displaced and/or have restricted movement, possibly with signs of neurological and/or vascular involvement. Several terms are used by chiropractors to describe this concept, most commonly *joint dysfunction* and/or *spinal subluxation*. The causative factors of these joint dysfunctions (static or dynamic) include various types of stresses or congenital anomalies.

The manual correction of joint dysfunction requires highly developed psychomotor skills to deliver a precise corrective adjustment. By manually adjusting vertebrae into their normal physiological relationship, interference with the nervous system is thus relieved, and normal mobility and comfort are reestablished.

Chiropractic methods have evolved over time; studies documenting these methods have indicated that, in addition to orthopedic conditions such as backache, headache and whiplash, conditions that involve organs and internal glands of the body might also respond to chiropractic adjustments (Plaugher 1993). In many instances, modern chiropractic care includes the supplementing of spinal adjustments with a variety of extremity joint adjustments or certain physiotherapeutic modalities, exercise, and nutritional counseling.

Canadian and International Recognition of Chiropractic

As of this writing, there are approximately 50,000 chiropractors in North America. Approximately 3,600 of these are located in Canada. Over half of the practicing chiropractors worldwide have graduated since 1977.

Canada is a federation of ten provinces and two territories covering an area of 3.8 million square miles. Even with the demise of the Soviet Union, Canada is still the second (to Russia) largest country in the world. Ten Provinces, spanning 4,500 miles, link the Pacific and Atlantic coasts: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland. In addition, two territories make up the northern half of Canada: the Yukon and Northwest.

Approximately 90% of the Canadian population lives in the southern part of the country. Eight of the ten provinces are primarily English-speaking, while Quebec is predominately French speaking, and New Brunswick is officially bilingual. Almost 65% of the country's general population reside in either Ontario (in central Canada) or Quebec (on the eastern border), with these two provinces supporting a comparable proportion of chiropractors.

Chiropractic is officially recognized and legally practiced in all ten Canadian provinces, as well as in the Yukon Territory. Chiropractic is not currently recognized in the Northwest Territory, although chiropractic legislation is being considered. In addition to Canada, chiropractors are legally recognized or are allowed to practice without official sanction in the following nations:

Australia	Germany	Japan	South Africa
Belgium	Greece	Jordan	Spain
Belize*	Guam	Liechtenstein	Sweden
Bermuda	Guatemala	Mexico	Switzerland
Brazil	HongKong*	Namibia*	The Netherlands
Colombia	Iceland	New Zealand	United Kingdom
Cyprus	Iran	Norway	United States
Denmark	Ireland	Panama	U.S. Virgin Islands
Ecuador	Italy	Peru	Venezuela
Finland	Jamaica	Puerto Rico	Zimbabwe

** Legislation pending*

Chiropractic and Canada's National Health Care System

Chiropractic is Canada's largest drugless health profession and an integral part of the nation's comprehensive health care plan. Since practitioners are recognized as primary contact caregivers, they can administer patient treatment without prior referral.

Chiropractic is currently the third largest primary contact health care profession in both Canada and the United States, surpassed in numbers only by practitioners of medicine and dentistry. In Canada, approximately 10 million visits are made to chiropractors annually, with more than $100 million spent on chiropractic services (CCA).

Recent Canadian studies suggest that back pain affects up to 30% of the population at any given time and will afflict up to 80% of Canadians at least once in their lifetime. It is estimated that one in every three adults in Canada has received chiropractic treatment sometime during his/her lifetime. In addition, one in every ten Canadian adults has received treatment in the past year, as compared to one in 20 adults in the United States.

For over 25 years, Canada has had a Medicare system administered through the provinces that provides essential medical services at no direct cost to Canadian residents. Under this health care system, the federal government reimburses the provinces for a portion of their health care costs. At the present time, chiropractic care is partially government-funded in some provinces. Generally, private insurers provide coverage for chiropractic in those provinces where the government does not pay a portion of the fee for chiropractic care. In provinces where the government does pay a portion of the fee, the patient is generally responsible for paying the balance.

Chiropractic Requisites and Education

In general, there are four major steps an individual must complete in order to become a practitioner of chiropractic in Canada (Figure 1.2): 1) successfully complete a minimum of two years of university education; 2) graduate from an accredited chiropractic college; 3) pass the Canadian Chiropractic Examining Board (CCEB) examinations or the United States National Board of Chiropractic Examiners examinations (in Quebec only) and; 4) pass appropriate provincial chiropractic examinations.

Licensed Canadian chiropractors are entitled by law to use the titles "Doctor of Chiropractic," "D.C.," or as noted in some provinces, "Chiropractic Physician." The chiropractor is engaged in the treatment and prevention of disease as well as in the promotion of public health and welfare. As such, doctors of chiropractic must meet stringent testing, educational, and performance standards before being granted a license to practice.

A doctor of chiropractic's training generally requires a minimum of six years of college study. Government inquiries (described in the following chapter), as well as independent investigations by medical practitioners, have affirmed that today's chiropractic undergraduate training is of equivalent standard to medical training in all pre-clinical subjects (Chapman-Smith, 1988).

According to the international *1992-1993 Chiropractic College Directory*, the academic background of 83.1% of the students entering chiropractic college was in life science/biology. The remaining 16.9% had studied liberal arts, business, economics, physical science, engineering, and education.

In Canada, as in the United States, the primary accrediting agency for the chiropractic profession is the Council on Chiropractic Education (CCE). Established in 1978, the Council is incorporated under the laws of Canada. The CCE maintains reciprocal status with the chiropractic accrediting agencies in the United States and Australia, and allows graduates to apply for licensure in most jurisdictions in those countries. To ensure that high standards in chiropractic education are maintained, all accredited chiropractic col-

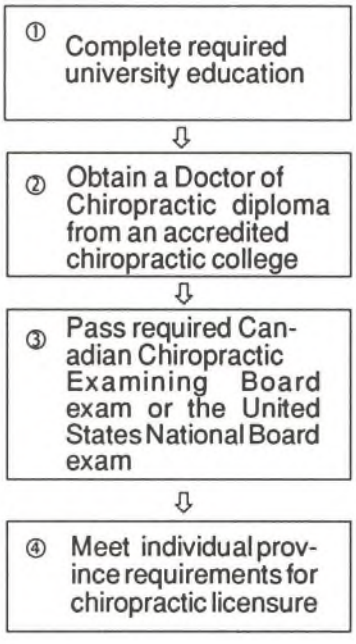

FIGURE 1.2
Steps Leading to Chiropractic Practice

leges must meet certain requirements. Criteria address curriculum, faculty qualifications, faculty-student ratio, library holdings, facilities, school governance, administration, and financial stability. At this time, chiropractic colleges exist in Canada, the United States, the United Kingdom, France, Australia, Japan, Denmark, and South Africa.

The chiropractic curriculum typically consists of either four or five academic years. Courses which a first-year chiropractic student can expect to study are the following:

- physiology
- gross anatomy
- physics
- endocrinology
- organ histology
- microbiology
- neuroanatomy
- chiropractic principles and psychomotor skills
- spinal anatomy
- biochemistry
- fundamentals of pathology

Second-year chiropractic students can expect coursework that involves adjustive techniques of the spine and pelvis as well as the following health sciences:

- nutrition
- immunology
- toxicology
- radiology
- embryology
- biomechanics
- renal physiology
- pathology
- hematology & clinical laboratory
- neurology
- neuromusculoskeletal diagnosis
- human development

In addition to receiving substantial supervised clinical experience, third-year and fourth-year students' coursework includes the following:

- radiology technology
- public health
- extremity adjusting
- orthopedics
- business & personnel management
- practice management
- visceral disorders
- female disorders
- biostatistics & research
- rheumatology
- differential diagnosis
- psychology

Canadian Memorial Chiropractic College

As of this writing, Canadian Memorial Chiropractic College (CMCC) in Toronto is the only CCE-accredited chiropractic college in Canada. Up to 150 Doctor of Chiropractic degrees are awarded annually. (See page 6 for the chiropractic program in Quebec.) CMCC offers a program that meets international standards established for the chiropractic profession.

Established in 1945, CMCC is a non-profit institution chartered under the Companies Act of Ontario and designated a charitable organization by the government of Canada. CMCC receives no government funding. It is supported by tuition fees, membership fees from the

chiropractic profession, donations, and proceeds from the CMCC Supply Centre and Bookstore. Chiropractic students are eligible for funding from the Canadian and Provincial Student Loan programs. There are also scholarships and bursaries available.

Standards for acceptance into the CMCC program are stringent; an average of one in every 2.5 applicants is granted admission. Students must provide the school with proof of having: 1) completed at least three years of university study leading towards a baccalaureate degree; 2) completed courses in biology, organic chemistry, psychology, and humanities and/or social sciences; 3) maintained at least a "B" college course average, and; 4) acquired demonstrable proficiency in the English language.

The chiropractic curriculum consists of three nine-month periods and one twelve-month period of study to be completed in four years (or a minimum of 4,500 classroom hours). In addition, fourth-year students are required to complete an investigative research project.

Chiropractic Doctoral Program

Beginning in the fall of 1993, the Université du Québec à Trois-Rivières began offering a unique five-year program in chiropractic. This is the first time in the history of chiropractic education in North America that a chiropractic college curriculum has been fully integrated into an established university educational system. The five-year publicly funded program accepts 45 students annually and is conducted in French.

The entire program consists of 2,382 hours of theoretical training and 2,587 hours of practical training. Preparation for the practice of chiropractic is concentrated in three areas: basic training in the biological and health sciences, specialized training in all aspects of the chiropractic discipline, and clinical experience.

In addition, the chiropractic student may specialize in certain fields of interest and earn a post-doctoral Fellowship or Diplomate through this program. As of this printing, the program is still awaiting accreditation from the Canadian Council on Chiropractic Education.

Specializations

Field programs which lead to specialty certification in Canada are available to chiropractic practitioners in clinical sciences, radiology, and sports sciences. Courses in these areas are conducted with the cooperation of CMCC, the College of Chiropractic Sciences, the College of Chiropractic Radiology, and the College of Chiropractic Sports Sciences.

Clinical Sciences

Two-year postgraduate residency programs are available at CMCC in chiropractic clinical sciences. As part of the residency program, the practitioner spends six months in a supervised

setting at the chiropractic clinic at the University Hospital in Saskatoon, Saskatchewan. The other 18 months of the program are spent in Toronto at CMCC attaining a specialized level of knowledge, skills and attitudes in areas such as pediatrics, orthopedics, scoliosis, low back pain, and pain management. Upon completion of the program, the candidate is eligible to sit for the examinations leading to certification as a *Fellow* of the College of Chiropractic Clinical Sciences (Canada).

Radiology

A two-year postgraduate residency program is available at CMCC in radiology. As part of this program, the practitioner participates in the six-month residency program at the University Hospital in Saskatoon, in addition to 18 months of study at CMCC. The radiology training emphasizes the technical aspects of radiograph production, radiation health and protection, plain film and contrast study diagnosis, and advanced imaging diagnosis. Throughout the residency program, the practitioner is engaged in duties including film interpretation, publication, rounds, lectures, and tutorials.

To be awarded the *Fellowship* from the College of Chiropractic Radiology (Canada), the practitioner must also become a Diplomate of the American Board of Chiropractic Radiology.

Sports Sciences

The post-graduate sports sciences program is comprised of three levels, each one involves 100 hours of instruction. Examinations are given at the end of each level, and upon successful completion of all three levels, a candidate is eligible to write for the *Fellowship* examinations of the College of Chiropractic Sports Sciences (Canada). Beginning in September 1994, there will also be a two-year sports residency program available at CMCC. The resident will spend six months in the program at the University Hospital in Saskatoon and 18 months at CMCC.

Upon completion of the program, the candidate will be eligible to sit for examinations leading to certification as a *Fellow* of the College of Chiropractic Sports Sciences (Canada). In order to attain *Fellowship* standing, the chiropractor must demonstrate practical and academic excellence in the area of sports sciences. In addition, the candidate for *Fellowship* must demonstrate that he/she is knowledgeably and skillfully diagnosing, treating, rehabilitating, and preventing athletically induced injuries, and promoting chiropractic as a viable and responsible profession within the field of sports sciences.

Chapter 2
Recent Studies Focusing on Chiropractic

Numerous research studies and various government inquiries have resulted in increasingly widespread recognition of chiropractic, and generally support the efficacy of chiropractic treatment. Excerpts from some of these studies have been highlighted in this chapter.

Canadian Studies on Chiropractic

A major report on the effectiveness of chiropractic treatment was published in 1993. The report, entitled *The Effectiveness and Cost-Effectiveness of Chiropractic Management of Low-Back Pain*, was funded by the Ministry of Health in Ontario to assess the most appropriate use of health care resources.

The Ministry was particularly interested in reducing the incidence of work-related injuries and in improving the rehabilitation of disabled and injured workers. The report stated that in the past year, ''twelve to thirty percent of people in modern industrialized societies reported low back pain.''

In light of these concerns, a massive literature review on the effectiveness and cost-effectiveness of chiropractic treatment was undertaken by an independent panel of researchers associated with the University of Ottawa. Their findings, outlined below, overwhelmingly support the efficacy and cost-effectiveness of chiropractic for the treatment of low-back pain:

- Scientifically valid clinical studies support the fact that chiropractic spinal manipulation is "more effective than alternative treatments for LBP (low-back pain). Many medical therapies are of questionable validity or are clearly inadequate."

- "There would be a highly significant cost savings if more management of LBP was transferred from physicians to chiropractors. Evidence from Canada and other countries suggests potential savings of 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, as well as in levels and duration of disability."

- "There is no clinical or case-control study that demonstrates or even implies that chiropractic spinal manipulation is unsafe in the treatment

of low-back pain. Some medical treatments are equally safe, but others are unsafe and generate iatrogenic complications for LBP patients ... The literature suggests that chiropractic manipulation is safer than medical management of low-back pain."

- "While it is prudent to call for even further clinical evidence of the effectiveness and efficacy of chiropractic management of LBP, what the literature revealed ... is the much greater need for clinical evidence of the validity of medical management of LBP. Indeed, several existing medical therapies of LBP are generally contraindicated on the basis of the existing clinical trials. There is also some evidence in the literature to suggest that spinal manipulations are less safe and less effective when performed by non-chiropractic professionals."

- "There is an overwhelming body of evidence indicating that chiropractic management of low-back pain is more cost-effective than medical management ... The evidence includes studies showing lower chiropractic costs for the same diagnosis and episodic need for care."

- "There is good empirical evidence that patients are very satisfied with chiropractic management of LBP and considerably less satisfied with physician management. Patient satisfaction is an important health outcome indicator and adds further weight to the clinical and health economic results favouring chiropractic management of LPB."

The report concluded with various recommendations including fully integrating chiropractic services into the health care system, shifting policy to encourage and prefer chiropractic services for most patients with low-back pain, employing chiropractors in tertiary hospitals, and extending hospital privileges to chiropractors.

The following are summaries of additional Canadian studies on chiropractic:

- A study of spinal manipulation involving 283 patients with chronic low-back and leg pain was conducted at a "specialized university back pain clinic reserved for patients who have not responded to previous conservative or operative treatment" located at the University of Saskatchewan in Saskatoon, Saskatchewan. In this study, which involved research conducted by both a medical doctor and a chiropractor, all patients were initially classified as totally disabled. Daily spinal manipulations were administered, and the effects of this treatment were assessed at one month and at three months. Results revealed that 81% of the patients became symptom free or achieved a state of mild intermittent pain with no work restrictions (Kirkaldy-Willis, Cassidy 1985).

- A study of 744 patients with neck and back pain who had been referred from hospitals, private practice specialists, general practitioners, and chiropractors analyzed the effectiveness of chiropractic manipulation. The results revealed that 36% of the patients recovered (became symptom-free with no work restrictions), 34.5% became much improved (mildly symptomatic and able to function normally), 7.3% slightly improved (possible activity restrictions), 21.6% showed no change, and 0.6% became worse. The study also revealed that "post-surgical patients do very well under chiropractic care, and in fact at this center, patients are routinely referred back to us three months after surgery for maintenance care" (Potter 1977).

- The Back Pain Clinic at the Royal University Hospital in Saskatoon, Saskatchewan, reviewed literature pertinent to "Side Posture Manipulation for Lumbar Intervertebral Disk Herniation." The authors of the study concluded that "the treatment of lumbar intervertebral disk herniation by side posture manipulation is both safe and effective" (Cassidy et al. 1993).

Other Studies on Chiropractic

In addition to the Canadian studies previously cited, many other studies have explored chiropractic treatment. These have focused on the effectiveness of chiropractic treatment for back pain, for work-related injuries, and for other disorders. The following is a brief summary of some of these studies:

- RAND, a non-profit research organization, has completed three studies in the United States on chiropractic, with a fourth study currently underway.
  - -- The first study, a population-based estimate concerning the use of chiropractic services, reported in the *American Journal of Public Health*, that "chiropractors deliver a substantial amount of health care to the U.S. population, and there are significant geographic variations in the rate and intensity of use of chiropractic services" (Shekelle 1991).
  - -- The second study, "Spinal Manipulation for Low-Back Pain," published in the *Annals of Internal Medicine*, affirmed that spinal manipulation is of benefit to some patients with acute low-back pain (Shekelle and Adams 1992).

-- The third study created two sets of appropriateness ratings for spinal manipulation. One set of ratings was developed by a multi-disciplinary panel and the other set was prepared by an all-chiropractic panel (Shekelle et al. 1992).
-- The fourth study, currently underway, is to determine the types of health care problems for which people seek chiropractic care and the types of care people receive from chiropractors. This study is expected to be completed in 1994.

- In Australia, a 12-month study conducted by the Australian Centre for Chiropractic Research included all work-related low-back pain claimants. Individuals were identified who received care either from a chiropractor or a medical practitioner. The results indicated that:
  -- When chiropractic management was chosen, fewer claimants required compensation and fewer compensation days were taken.
  -- When medical management was chosen, the average payment per claim was greater and a greater number of patients regressed to chronic status (Ebrall 1992).

- A study reported in the *British Medical Journal* included 741 patients between the ages of 18 and 65 who suffered from chronic or severe back pain and who sought care in chiropractic and hospital out-patient clinics. After two years of patient monitoring, researchers concluded that "for patients with low-back pain in whom manipulation is not contraindicated, chiropractic almost certainly confers worthwhile, long-term benefit in comparison with hospital out-patient management" (Meade et al. 1990).

- Researchers conducted a study of workers' compensation cases in Florida and concluded that "a claimant with a back-related injury, when initially treated by a chiropractor versus a medical doctor, is less likely to become temporarily disabled, or if disabled, remains disabled for a shorter period of time; and claimants treated by medical doctors were hospitalized at a much higher rate than claimants treated by chiropractors" (Wolk 1988).

- From a survey of those receiving care from health maintenance organizations (HMOs) in Washington state it was concluded that "... patients of chiropractors were three times as likely as patients of family physicians to report that they were satisfied with the care they

received for low-back pain ... Chiropractic patients were also more likely to have been satisfied with the amount of information they were given and to believe their doctor was concerned about them" (Cherkin and MacCornack 1989).

- "Family Physicians, Chiropractors, and Back Pain," is the title of an article published in the *Journal of Family Practice* (November 1992), addressing a comparative United States study of patients of family physicians and chiropractors. The article stated that "the number of days of disability for patients seen by family physicians was significantly higher (mean 39.7) than for patients managed by chiropractors (mean 10.8)" (Curtis and Bove 1992). A related editorial published in the same issue of the *Journal of Family Practice* stated that family physicians should accept the fact that "... spinal manipulation is one of the few conservative treatments for low-back pain that have [sic] been found to be effective in randomized trials. The risks of complications from lumbar manipulation are also very low" (Cherkin 1992). The latter conclusion is supported by a study published by the *Chiropractic Journal of Australia* which reported that "a descriptive analysis of obtainable literature on complications from low-back SMT (spinal manipulation treatment) from 1911 to 1991 indicates that, on the average, less than one case per year occurs" (Terrett and Kleynhans 1992).

- The *Journal of Manipulative and Physiological Therapeutics*, published in the United States, reported results of a study of women between the ages of 20 and 49 with a history of dysmenorrhea (painful menstruation): "SMT may be an effective and safe nonpharmacological alternative for relieving the pain and distress of primary dysmenorrhea, at least for a short period of time after treatment" (Kokjohn et al. 1992).

- A number of United States clinical studies cite success rates ranging from 72% to 90% for the treatment of headaches utilizing spinal manipulation therapy. For example, a study reported in the American Chiropractic Association's *Journal of Chiropractic* reported that 74.6% of patients with recurring headaches, including those experiencing migraines, were either cured or experienced reduced symptomatology associated with their headaches after receiving chiropractic manipulation. Most importantly, the success rate was maintained two years after treatment ended (Wight 1978).

A number of studies have documented the effectiveness of chiropractic treatment for a variety of other conditions including soft tissue injuries and visceral disorders (Plaugher 1993; Lewit 1985; and Korr 1978).

Other Studies Focusing on the Cost-Effectiveness of Chiropractic

Historically, chiropractors have promoted chiropractic management of back pain as a cost-effective approach to alleviating this condition. The following studies support this assertion:

- A study conducted in the United States involving 395,641 patients with one or more of 493 neuromusculoskeletal conditions was undertaken to compare the health care costs of patients who have received chiropractic treatment to those treated solely by medical or osteopathic physicians. The results showed that "patients receiving chiropractic care experienced significantly lower health care costs ... (with) total cost differences on the order of $1000 over the 2-year period ..." The report concluded that "... these preliminary results suggest a significant cost-saving potential for users of chiropractic care." The report of the study also suggests the need to re-examine insurance practices and programs relative to chiropractic coverage (Stano 1993).

- The Florida study on workers' compensation claims, previously cited in reference to back pain, found that "the estimated average total cost of care, computed across all the major categories of treatment cost, was substantially higher for medical patients compared with chiropractic patients..." The authors of the study concluded that chiropractic care is more cost-effective in the treatment of work-related back injuries than standard medical care (Wolk 1988).

- A 1988 workers' compensation study conducted in Utah assessed the total cost per case of chiropractic care versus medical care for conditions with identical diagnostic codes. The results indicated that costs were significantly higher for medical claims than for chiropractic claims. In addition, the number of work days lost for those receiving medical care was nearly 10 times higher than for those who received chiropractic care (Jarvis, Phillips, and Morris 1991).

- A comparison of the cost of chiropractic care versus the cost of medical care for various health conditions (predominantly low-back pain, spinal-related sprains, strains, dislocations, arthritis, and disc disorders), re-

vealed that "chiropractic is a lower cost option for several prominent back-related ailments ... If chiropractic care is insured to the extent other specialists are stipulated, it may emerge as a first option for patients with certain medical conditions. This could very well result in a decrease in overall treatment costs for these conditions" (Dean and Schmidt 1992).

- A review of data from over two million users of chiropractic care in the United States was reported in the *Journal of American Health Policy*. Initial analysis indicated that "chiropractic users tend to have substantially lower total health care costs" and "chiropractic care reduces the use of both physician and hospital care" (Stano et al. 1992).

- A workers' compensation study conducted in Oregon (1990) evaluated the loss of working time incurred by chiropractic (DC) and medical (MD) claimants with disabling low-back work-related injuries. Authors of the study concluded that "the median time loss days for cases with comparable clinical presentation (severity) was 9.0 for DC cases and 11.5 for MD cases. Chiropractic claimants had a higher frequency of return to work with one week or less of time loss." (Nyiendo 1991).

- A study, published in 1992, compared the cost-effectiveness of chiropractic care to medical care in the commonwealth of Virginia. The report of the study indicated that chiropractic:
  -- has minimal cost-increasing effects on insurance and may in fact reduce insurance costs.
  -- provides important therapeutic benefits at economical costs.

  This study also recommended that chiropractic care be a widely available form of health care, and noted that it is a growing and widely used component of the health care sector (Schifrin 1992).

Utilization and Public Opinion Surveys

Additional studies have assessed the utilization and acceptance of chiropractic services throughout Canada and the United States. A few of these studies are described in subsequent paragraphs:

- A survey in the province of Ontario revealed that a majority of MDs in family practice (62%) were referring patients to chiropractors. Nearly half of these MDs (42.3%) had been referring patients for the past 1-5

years, with the referral rate being slightly higher among MDs who had graduated before 1960 (60%) and between 1960 and 1980 (65%) than for those who had graduated in the past 10 years (53.8%). In addition, the study revealed that 9.5% of these MDs had received chiropractic care themselves (Patel-Christopher 1990).

- A Gallup poll conducted in the United States and reported in March of 1991 examined the attitudes and behaviors of both users and nonusers of chiropractic services. Of the users of chiropractic services:
  -- 90% felt chiropractic treatment was effective;
  -- more than 80% were satisfied with their treatment;
  -- nearly 75% felt most of their expectations had been met during their visits;
  -- 68% would see a chiropractor again for treatment of a similar condition;
  -- 50% would likely see a chiropractor again for other conditions.

  Of the non-users of chiropractic services:
  -- 62% indicated they would see a doctor of chiropractic for a problem applicable to chiropractic treatment;
  -- 25% reported that someone in their household had been treated by a chiropractor, and nearly 80% of those were satisfied with that treatment.

- A 1985 survey of North Dakota residents, also conducted by the Gallup Organization, indicated that awareness and use of chiropractic services in the state were very high. Nearly 100% of the residents had heard of chiropractors, and almost half of the residents (49%) reported that they had been examined or treated by a chiropractor at some time. One in six residents (17%) had seen a chiropractor in the past year.

Government and Legal Inquiries

As related in Chapter 1, chiropractic is (as of this printing) legally recognized or allowed to be practiced without official sanction in approximately 39 countries. Varying degrees of investigation into the appropriateness of chiropractic treatment preceded the official stance of these countries.

In recent years, the Canadian and United States governments have begun requiring that health professionals provide guidelines for use in assessing the appropriateness of care. In an attempt to address this requirement, 35 chiropractors in North America were invited to

participate in a conference held in early 1992 at the Mercy Center in Burlingame, California. A publication released in early 1993 entitled, *Guidelines for Chiropractic Quality Assurance and Practice Parameters,* related the proceedings of that conference.

During April 1993, the Canadian Chiropractic Association sponsored a conference in Toronto to establish clinical guidelines for chiropractic standards of care in Canada. The participating members included chiropractors from various chiropractic organizations throughout Canada. Results of this conference will be published in a report scheduled for release at the end of 1993.

The New Zealand Commission of Inquiry

Another particularly significant study of chiropractic was conducted by the New Zealand Commission of Inquiry. In its 377-page report to the House of Representatives, the Commission states that their report followed an extended (two-year) inquiry which at that time was "probably the most comprehensive and detailed independent examination of chiropractic ever undertaken in any country." Excerpts from the Commission's report follow:

> "We entered into our inquiry in early 1978. We had no clear idea what might emerge. We knew little about chiropractors. None of us had undergone any personal experience of chiropractic treatment. If we had any general impression of chiropractic it was probably that shared by many in the community: that chiropractic was an unscientific cult, not to be compared with orthodox medical or paramedical services. We might well have thought that chiropractors were people with perhaps a strong urge for healing, who had for some reason not been able to get into a field recognised by orthodox medicine and who had found an outlet outside the fringes of orthodoxy.
>
> "But as we prepared ourselves for this inquiry it became apparent that much lay beneath the surface of these apparently simple terms of reference. In the first place, it transpired that for many years chiropractors had been making strenuous efforts to gain recognition and acceptance as members of the established health care team. Secondly, it was clear that organised medicine in New Zealand was adamantly opposed to this on a variety of grounds which appeared logical and responsible. Thirdly, however, it became only too plain that the argument had been going on ever since chiropractic was developed as an individual discipline in the late 1800s, and that in the years between then and now the debate had generated considerably more heat than light.
>
> "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 specialised area..."

Specific conclusions of the Commission's report, based on investigations in New Zealand, the United States, Canada, the United Kingdom, and Australia, were as follows:

- Modern chiropractic is far from being an "unscientific cult."

- 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 to determine whether ... the patient should have medical care instead of or as well as chiropractic care.

- Spinal manual therapy can be effective in relieving musculo-skeletal symptoms such as back pain, and other symptoms known to respond to such therapy, such as migraine.

- 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.

- Although the precise nature of the biomechanical dysfunction ... and... the precise reasons why spinal manual therapy provides relief have not yet been scientifically explained, chiropractors have reasonable grounds based on clinical evidence for their belief that symptoms of the kind described above can respond beneficially to spinal manual therapy.

- 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.

Subsequent to the New Zealand Inquiry, the Australian Federal Minister of Health requested that a committee be formed to consider extending the scope of (government-funded) Medicare benefits for certain services, including chiropractic.

The Committee accepted all of the findings of the New Zealand commission, and also noted the "significant shift in the last decade in attitude ... towards the issue of scientific research" in chiropractic. It also recommended funding for chiropractic in hospitals and other public institutions, and endorsed greater philosophical unity in chiropractic.

Another noteworthy study was conducted in 1987 by the Swedish government's Commission on Alternative Medicine. It reached conclusions consistent with the New Zealand and Australian studies and also stated that:

- Chiropractors with the Doctor of Chiropractic degree should become registered practitioners and be brought within the national insurance system.

- The university-level training of DCs is equivalent to Swedish medical training.

- DCs have competency 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 to the public interest.

The Wilk vs. AMA Lawsuit

Another inquiry that further validated chiropractic came about through an antitrust suit filed by four members of the chiropractic profession against the American Medical Association (AMA), and a number of other medical organizations in the United States (Wilk *et al v. AMA et al*, No. 90-542, October 1990).

In 1987, following 11 years of legal action, a federal appellate court judge ruled that the AMA had engaged in a "lengthy, systematic, successful and unlawful boycott" designed to restrict cooperation between MDs and chiropractors in order to eliminate the profession of chiropractic as a competitor in the United States health care system. (This was upheld by the 7th United States Circuit Court of Appeals.)

The AMA offered a patient care defense; however, data from Workmen's Compensation Bureau studies served to validate chiropractic care. Specifically, studies comparing chiropractic care to care by a medical physician were presented which showed that chiropractors were "twice as effective as medical physicians, for comparable injuries, in returning injured workers to work at every level of injury severity."

The settlement of the suit included an injunctive order in which the AMA was instructed to cease its efforts to restrict the professional association of chiropractors and AMA members. The AMA was also ordered to notify its 275,000 members of the court's injunction. In addition, the American Hospital Association (AHA) sent out 440,000 separate notices to inform hospitals across the United States that the AHA has no objection to allowing chiropractic care in hospitals.

Since the court findings and conclusions were released, a growing number of medical doctors, hospitals, and health care organizations in the United States have begun including the services of chiropractors.

Chapter 3
Licensure Requirements for Chiropractic Practice in Canada

In recent years, public accountability related to occupational performance has increased dramatically. With about 30 occupations and 51 trades now being regulated by provincial or federal legislation, testing for licensure and certification is highly scrutinized. This chapter addresses licensure, certification, and testing issues pertaining to these areas.

Licensure and Certification

Although the terms **licensure** and **certification** are often used interchangeably, they are differentiated by their purposes.

Traditionally, licensing has been required by law in order to enter certain professions. It is the most restrictive form of occupational regulation; activities covered by the occupational scope of practice may not legally be performed without prior authorization, which can only be granted by the appropriate government agency.

Certification has typically been a voluntary program that recognizes individuals who have achieved beyond the basic level of competency necessary to practice in a profession. Lack of certification does not usually exclude a person from practice, as occurs with licensure (Johnson and Corgel 1983).

Licensure and certification exams rely on a job analysis to provide evidence that an exam contains appropriate content.

Standards of Testing

With the increased usage of tests in all aspects of society, particularly for licensure and certification, guidelines for test construction have been prepared by the federal government and the private sector. Standards set by the United States Equal Employment Opportunity Commission and Departments of Labor and Justice are referred to as the *Uniform Guidelines on Employee Selection Procedures (1978)*. Standards prepared by the private sector are titled the *Standards for Educational and Psychological Testing (1985)*.

Currently, both the *Standards for Educational and Psychological Testing* and the *Uniform*

Guidelines on Employee Selection Procedure are utilized by the Canadian government in determining licensure guidelines. These two documents have been quoted and followed extensively in both the Ontario government report in 1990 titled *Access Report on Trades and Professions*, and the *Alberta Report on Foreign Qualifications*.

The *Standards for Educational And Psychological Testing* authored by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education, and the *Uniform Guidelines on Employee Selection Procedures* are in agreement that, in order for licensure examinations to be valid, they should be based on a job analysis. The *Uniform Guidelines state:*

> "Any validity study should be based upon a review of information about the job for which the selection procedure is to be used ... Any method of job analysis may be used if it provides the information required for the specific validation strategy used."

Content-related validity in a licensure exam is evidence that the tasks addressed in the exam appropriately reflect the tasks required for successful job performance. Content validity evidence relies upon a job analysis, as indicated in the *Standards for Educational and Psychological Testing*:

> "Job analyses provide the primary basis for defining the content domain. If a single examination is used in the licensure or certification of people employed in a variety of settings and specializations, a number of jobs may need to be analyzed. Although the job analysis techniques are comparable to those used in employment testing, the emphasis for licensure and certification is limited appropriately to knowledge and skills necessary to protect the public..."

Licensing Requirements

The power to license rests in the provinces which have an exclusive right to license health care professionals. The purpose of licensing, according to the *Standards for Educational and Psychological Testing*, is to protect the public. This text states:

> "Licensing requirements are imposed to ensure that those licensed possess knowledge and skills in sufficient degree to perform important occupational activities safely and effectively."

As a general rule, only those applicants who satisfy the provincial prerequisites are allowed to take the provincial licensing examination. Criteria established by provincial regulatory agencies surround training and experience, minimum age, years of formal education or academic degrees, a period of residency within the province, and evidence of good moral character.

In fulfilling the purpose of protecting the public, licensure laws enacted by provinces "assure the qualifications of new practitioners and discourage incompetent and unscrupulous practice of the occupation" (Fortune 1985). This is accomplished through several processes, including extensive testing for licensure, active peer review programs, continuing education programs, and the provincial licensing authorities' discipline of practitioners who fail to meet recognized standards.

Canadian Chiropractic Examining Board

To facilitate meeting the responsibilities of testing required for licensure, organizations such as the Canadian Chiropractic Examining Board (CCEB) have been established. The CCEB was created in 1962 to administer licensure examinations that would be accepted by the Canadian Provincial Chiropractic Examining Boards. CCEB examinations are administered at CMCC in Toronto, Ontario; Calgary, Alberta; and both Palmer College of Chiropractic in Iowa and Los Angeles College of Chiropractic in Los Angeles. (Examinations are held in the United States locations when there are sufficient applicants.)

The examinations assess an individual's knowledge of anatomy, physiology, diagnosis and symptomatology, microbiology and public health, neurology, pathology, X-ray, chemistry, and chiropractic practice. The exams are offered in April of each year.

Province Licensing

Within Canada, the provinces remain the final authority for granting a license to practice chiropractic. Each province has its own legislation regarding licensure requirements as well as other areas pertaining to chiropractic.

The obtaining of passing scores from examinations produced by the CCEB is required for licensure in each province. In addition to the CCEB examinations, each province may conduct oral, psychomotor, or written examinations that assess physical examination skills, adjusting technique, radiographic interpretation, and case history-taking skills. A brief description of the chiropractic licensing requirements in each of the ten provinces and the Yukon Territory follows (a complete explanation of provincial licensing requirements may be obtained by contacting the provincial licensing boards).

Figure 3.2
The number of licensed chiropractors in each of the 10 provinces.

Alberta

Chiropractic has been practiced in Alberta since 1918. A total of 381 chiropractors were licensed and practicing in this province when the survey was administered.

The requirements for licensure include: graduation from an accredited chiropractic college; obtaining passing scores on the CCEB and the provincial examinations; Canadian citizenship or residency; and providing satisfactory evidence of good moral character.

Alberta chiropractors are primary contact providers and have a portion of their fees reimbursed by the provincial government. After reaching the limit of coverage, the patient may utilize private insurance. Full coverage is available through the workers' compensation program.

British Columbia

Chiropractic has been practiced in this province since 1919 although it was not legislated until 1934. During the administration of the survey, there were 485 licensed chiropractors who served over three million people.

In order to obtain a license to practice chiropractic, an individual must: be a Canadian citizen or landed immigrant; be a graduate of a CCE-accredited chiropractic college; have completed a minimum of two years of pre-chiropractic university study (or equivalent); and have passed both the CCEB and provincial examinations.

Partial coverage of chiropractic services exists through the provincial medical plan and through the workers' compensation program.

Manitoba

Chiropractic has been practiced in Manitoba since the 1930s, although the first chiropractic legislation was not passed until 1945. The population of Manitoba is approximately 1.1 million with 132 licensed chiropractors.

Requirements for licensure to practice chiropractic include: graduation from a CCE-accredited chiropractic college, and having passed both the CCEB and provincial examinations. The chiropractic specialty programs recognized by the provincial government include radiology and orthopedics.

Partial coverage of chiropractic services is available through the provincial health program. Chiropractic is fully covered by both the workers' compensation program and the compulsory auto insurance plans. Recent provincial studies estimate that 13% of the population in this province utilized chiropractic services during 1992. (This is the highest utilization of chiropractic services reported by any of the provinces.)

New Brunswick

The New Brunswick Chiropractors' Act, Constitution, and Bylaws were incorporated in 1958 and at this printing are in the process of being amended. Approximately 800,000 people live in this province which has 31 licensed chiropractors.

The requirements for licensure include: graduation from a CCE-accredited chiropractic college; obtaining passing scores on both the CCEB and provincial examinations; obtaining membership in the Canadian Chiropractic Association and the New Brunswick Chiropractors' Association; and providing two letters of reference. Annually, each member is required to show proof of professional liability coverage with the Canadian Chiropractic Protective Association or another insurance company where coverage equals or exceeds that of the Canadian Chiropractic Protective Association.

Since chiropractors are primary contact practitioners, no referral is required to see a chiropractor for workers' compensation benefits. Blue Cross offers policies designed for seniors with some policies providing partial reimbursement for a limited number of visits. Veterans may be authorized for coverage of chiropractic services through the Department of Veterans Affairs health care program. The Royal Canadian Mounted Police also provides a health care plan that covers chiropractic services.

Newfoundland and Labrador

Chiropractic was first introduced in the province of Newfoundland and Labrador in the late 1950s. This was the last province to receive a charter, which was granted July 1, 1992. There were 11 practicing chiropractors in Newfoundland and Labrador when the survey was administered.

As of this printing, the Rules and Regulations that accompany the Chiropractic Act are pending approval from the Department of Health. Licensing requirements for the practice of chiropractic in this province have been enacted with the following requirements: graduation from a CCE-accredited chiropractic college; successful completion of the CCEB examinations; and meeting "other requirements which may be prescribed by the regulations."

Government reimbursement under Medicare for chiropractic services is not available; and coverage through the workers' compensation program is under negotiation. Reimbursement for chiropractic services is partially covered for individuals currently employed in the province.

Nova Scotia

The first Constitution for the Nova Scotia Chiropractic Association was formulated in 1953. Since that time, regulatory legislation has included passage of the Chiropractic Act in 1972. The population of Nova Scotia is about 900,000. There were 22 licensed practitioners in this province when the survey was distributed.

According to the licensing authority in Nova Scotia, the requirements for licensure include: graduation from CMCC, or a chiropractic college in the United States which is fully accredited by the CCE, or a chiropractic college in another country which is recognized within its own jurisdiction and which is approved by the Nova Scotia Board of Chiropractors; successful completion of the CCEB and provincial examinations; establish a chiropractic practice in Nova Scotia within three years of the examination date; a minimum age of 21 years; proof of Canadian citizenship or of entitlement to work in Canada; and registered membership in the Nova Scotia and Canadian Chiropractic Associations.

At this time, no government reimbursement for chiropractic services is available. The workers' compensation program offers injured workers twenty treatments, with an additional ten treatments upon request and approval.

Ontario

Chiropractic has been practiced in Ontario since 1903. Currently, 1299 licensed chiropractors serve an estimated 8.5 million people.

Until recently, chiropractic was practiced and legislated under the Drugless Practitioners Act. New legislation called the Regulated Health Professions Act will govern each major health profession, including chiropractic. The Regulated Health Professions Act is expected to take effect December 1993.

Licensure requirements to practice chiropractic include: graduation from a CCE-accredited chiropractic college, and having passed both the CCEB and provincial exams.

Partial reimbursement for chiropractic services is available through the provincial government. Chiropractic has been covered by the workers' compensation program since 1935. Recent studies estimate that 8-11% of the population utilized chiropractic services in any given year.

Prince Edward Island (PEI)

There has been a chiropractic presence on this island of 131,000 people since the early 1920s. PEI is the smallest of the Canadian provinces and, at this time, only three chiropractors practice there.

Licensing requirements to practice in this province are: graduation from an approved chiropractic college; successful completion of the CCEB exams; and membership in the Canadian Chiropractic Association, Canadian Memorial Chiropractic College, and in the PEI Chiropractic Association. No provincial exam is offered.

No government reimbursement for chiropractic services is presently available although chiropractic has been included in the workers' compensation program for the past 30 years.

Quebec

Chiropractic was legalized in the province of Quebec in 1974. The population of this province is about 7,000,000, with the number of licensed and practicing chiropractors at the administration of the survey being 773.

The requirements for licensure include: having graduated from a CCE-accredited college; successful completion of the CCEB examinations or Parts I, II, and III of the National Board of Chiropractic Examiners (USA) exam; and passing scores on the provincial exams in chiropractic and X-ray. Both provincial examinations are administered by the comité d' admission.

Chiropractic specializations are not yet recognized by the government; however, they are recognized by the licensing board. No government reimbursement for chiropractic care is available; however, most insurance companies provide partial reimbursement for chiropractic services. To obtain workers' compensation coverage, the injured worker must have a prescription for chiropractic services from a medical physician.

Saskatchewan

Chiropractic became a licensed profession under the Chiropractic Act in 1943. Prior to this time, chiropractic was practiced partially under the Drugless Practitioners Act. There are approximately 992,500 people living in Saskatchewan with 124 practicing chiropractors.

Practitioners wishing to obtain a license to practice must: be a graduate of a CCE-accredited chiropractic college; be a member in good standing of his/her association, if in practice in another province or state; and have passed the CCEB and provincial examinations.

Chiropractic was fully covered by medicare for 18 years until September 1992, when legislation was enacted requiring patients to pay for a portion of each treatment. A yearly global capitation system of payment was also instituted. Chiropractic treatments are fully covered by the workers' compensation plan and the provincial automobile insurance plan.

Territory Licensing

The only territory that currently requires licensure to practice chiropractic is the Yukon Territory. Licensure for the Yukon Territory is governed by the province of British Columbia. Requirements for licensure to practice chiropractic include: successful completion of the CCEB and British Columbia provincial examinations. Chiropractors do not need to be full-time members of the British Columbia College of Chiropractors but do need to maintain an associate status.

As of this printing, there are no licensure requirements to practice in the Northwest Territory.

Chapter 4
Planning and Developing the Job Analysis Survey

The NBCE Survey of Chiropractic Practice was originally designed for and administered to practitioners within the United States. At the request of the Canadian Chiropractic Examining Board and the Canadian Federation of Chiropractic Regulatory Boards, the survey was subsequently modified and administered to chiropractic practitioners throughout Canada.

This chapter addresses the process utilized in designing and producing the job analysis survey instrument first in the United States, and later in Canada. Typically, it is the survey instrument which forms the basis for a job analysis, and allows a job to be dissected into component parts which reveal the nature of the profession, and the tasks and functions performed by its practitioners.

Job Inventory

In performing a job analysis, one of the most frequently used methods for analyzing jobs is the job inventory approach. A job inventory is a "comprehensive list of the tasks that are performed to accomplish a job or set of jobs -- a list that is cast in the form of a questionnaire:"

> "The rationale underlying the job inventory approach is that it enables the surveyor to gather information about on-the-job activities actually performed by the job incumbents at different geographical locations; job tasks can be stated and listed in a questionnaire; as large a sample as is desired can by surveyed in order to obtain information about each task listed in the job inventory questionnaire; and accurate and reliable job descriptions can be developed by systematically and thoroughly analyzing the task data collected with a job inventory" (Gael 1987).

The job analysis requires that a list of separate and distinct job-related tasks be defined. Designing the list of tasks is one of the most critical elements in the job analysis process; the list ensures a complete and accurate description of the job.

Task Statements

According to Gael, three methods for compiling task statements and obtaining task data are suggested (and were incorporated into the NBCE survey): observation, content analysis, and interviews:

- **Observation** involves the observance of job incumbents performing their duties at work, and the reporting of these duties by job incumbents. Photographs or videotapes may be taken if needed. This technique is best employed when the job is composed of physically active tasks.
- **Content analysis** is the obtaining of data that have been written about the job, such as job descriptions, training materials, and company practices. This is an important information resource for understanding the academic and licensing authorities' views of the job being analyzed.
- **Interviews** involve asking job incumbents, supervisors, managers, and others knowledgeable about the job pertinent questions regarding the actual work activities performed by the job incumbents (Gael 1987).

As previously stated in this report, testing guidelines indicate that licensure and certification test plans should be based upon a job analysis documenting the characteristics of a profession as defined by the customary practices of its members. For examinations not used in the licensure and certification process, other means of determining test content are appropriate. For example, NBCE examinations which are utilized to assess academic proficiency (Part I, Part II, Physiotherapy) utilize a Delphi study to determine content.

The United States job analysis was conducted to document the content for a potential practical examination, to provide documentation for a special purposes (post-licensure) examination test plan, and to further assess the emphasis given to the Part III exam content.

Rating Scales

Rating scales, which are generally part of job analysis survey instruments, are important in the final analysis of the survey data:

> "Rating scales attempt to get appraisals on a common set of attributes for all raters and ratees and to have these expressed on a common quantitative scale ... Almost universally, a rating involves an evaluative summary of past or present experiences in which the 'internal computer' of the rater processes the input data in complex and unspecified ways to arrive at the final judgment... The most common pattern of rating procedure presents the rater with a set of trait names, perhaps somewhat further defined, and a range of numbers, adjectives, or descriptions that are to represent levels or degrees of possession of the traits" (Thorndike and Hagen 1977).

As is frequently used in job analyses, five-point scales (with values ranging from zero to four) were utilized in the NBCE survey. Major issues addressed by a five-point scale include:

- providing an efficient method of obtaining and processing data. In a large study with thousands of participants, it would be virtually impossible to manage unique responses from each individual.
- matching the accuracy of a respondent's data with the accuracy of the scale on which the data are recorded. For example, practitioners were asked to recall the frequency with which they saw various types of conditions or the frequency with which they performed various activities. In both instances, the five-point scale approximately matched the accuracy of practitioners' recollections.
- increasing the likelihood of response by developing an instrument which could be completed within 30 to 40 minutes. The five-point scale met this requirement. If individuals had been asked to provide unique responses that were not linked to a scale, this would have required additional time on the part of the respondent, and might have affected the return response rate.

The chiropractic practitioners who participated in the study were asked to utilize five-point scales to provide data about their patients, the types of conditions they typically saw in their practices, and the types of activities they commonly performed.

The Practical Exam Feasibility Study

In 1989, the Federation of Chiropractic Licensing Boards (FCLB) in the United States issued a resolution requesting that the NBCE initiate a study to determine the feasibility of developing and administering a national segmented practical examination for chiropractic. A job analysis was an essential part of this feasibility study and possible development of such an examination.

As of this writing, the practical examination feasibility study is still in progress. As indicated in Figure 4.1, the job analysis study

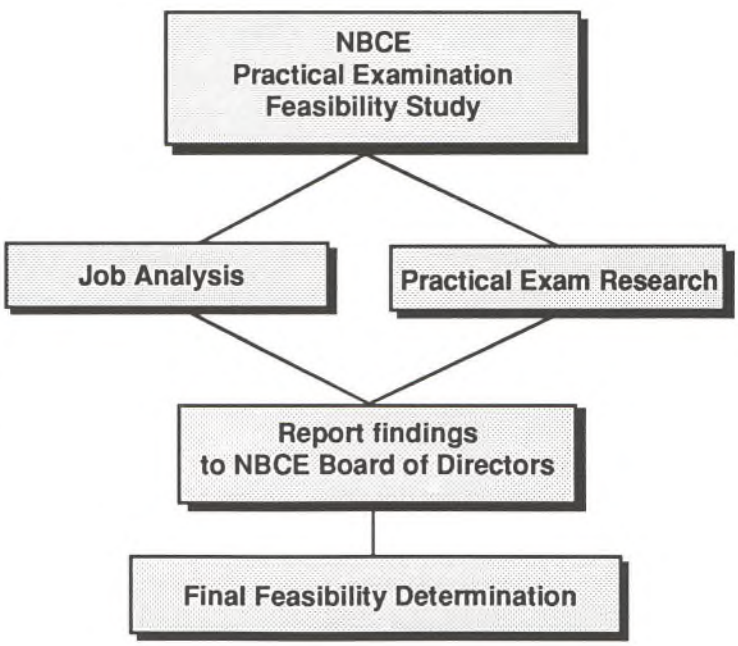

FIGURE 4.1
The NBCE Practical Examination Feasibility Study

was one of several major components in various NBCE studies aimed at determining the feasibility of administering a national practical exam. Individual components of a job analysis are indicated in the next section of this report.

Components of a Job Analysis

The following is a list of procedures followed in conducting the NBCE job analysis:

- Form a **Job Analysis Steering Committee.**
- Form a **National Job Analysis Advisory Committee.**
- **Review available literature** pertaining to a job analysis.
- Prepare and administer a **Practice Model Log**.
- Compile an **interim survey form**.
- Revise the interim survey form as indicated and prepare a **draft Survey of Chiropractic Practice**.
- Administer a **field test** of the job analysis survey form and revise as indicated.
- **Prepare** a final form of the Survey of Chiropractic Practice.
- **Print** the questionnaire booklets in a machine-scorable form.
- **Send** the survey forms to the CCEB for distribution to randomly selected practitioners.
- **Collect, machine score, and analyze** the survey **data**.
- **Publish a Job Analysis Report** of questionnaire findings under the guidance of the Steering Committee and Advisory Board.

Job Analysis Steering Committee

The first elements deemed critical to the success of a chiropractic job analysis were the participation and cooperation of experienced practitioners, educators, and examining board members. To address this need, the Job Analysis Steering Committee was created to guide the project. The committee was composed of members of the Board of Directors of the National Board of Chiropractic Examiners (USA), with the President of the Federation of Chiropractic Licensing Boards (USA) as Committee Chairperson:

D. Brent Owens, DC, *Chairperson*
James J. Badge, DC
Frank G. Hideg, Jr., DC
Louis P. Latimer, DC
Titus Plomaritis, DC

The primary responsibilities of the NBCE Job Analysis Steering Committee were to ensure that:

1) the content of the questionnaire, by nature or intent, was not biased or offensive to any respondent on the basis of personal characteristics such as gender or ethnicity;
2) the Survey of Chiropractic Practice adequately and fairly represented conditions seen, procedures utilized, and the activities and tasks performed by practicing chiropractors;
3) the randomly selected chiropractor would, by completing the questionnaire, be able to indicate
   -- the frequency with which presenting and concurrent conditions are seen in practice;
   -- the frequency and perceived risk associated with specific activities performed in practice;
   -- adjustive and non-adjustive techniques utilized in practice;
4) the data obtained from the questionnaire would provide demographic characteristics of practitioners and chiropractic patients, and also provide information concerning the work environment, experience, and orientation of practitioners;
5) the demographic data obtained from the survey could be used to study subgroups of respondents.

National Advisory Committee

In addition to forming a steering committee to oversee the entire job analysis project, the NBCE also created a National Advisory Committee encompassing the five regional NBCE districts. The Committee was composed of representatives from state examining boards, chiropractic educational institutions, and private practice. Committee members included:

Arizona	Elva M. Gamino, DC, private practitioner
California	Alfred D. Traina, DC, Chairperson, Clinical Sciences Division, Los Angeles College of Chiropractic
Delaware	H. Bruce Carrick, DC, Past President, Delaware Board of Chiropractic Examiners
Florida	Theodore F. Durling, DC, Vice Chairman, Florida State Board of Chiropractic
Georgia	William N. Willis, DC, Professor/Division Chair, Chiropractic Sciences Division, Life College, School of Chiropractic

Illinois	Daniel R. Driscoll, DC, Dean of Student and Alumni Affairs, National College of Chiropractic
New Hampshire	Vincent E. Greco, DC, Secretary/Treasurer, New Hampshire Board of Chiropractic Examiners
New York	Ann M. Carpenter, DC, New York State Board of Chiropractic Examiners
Ohio	Peter D. Ferguson, DC, President, Ohio Board of Chiropractic Examiners; District 2 Director, Federation of Chiropractic Licensing Boards
Oregon	Ravid Raphael, DC, Staff Clinician/Associate Professor, Western States Chiropractic College
South Carolina	David H. Mruz, DC, Chairman, District 4 Representative, South Carolina State Board of Chiropractic Examiners
Wisconsin	Meredith H. Bakke, DC, Chairperson, Wisconsin Chiropractic Examining Board

These individuals were selected to reflect diverse viewpoints within the field, including representation by gender, ethnic/racial background, and geographic area. The primary responsibilities of the NBCE National Advisory Committee members were:

1) to ensure that checklists of conditions seen, activities performed, chiropractic techniques, supportive techniques, and demographic data were not biased in terms of gender, ethnicity, regional or state characteristics, or professional background;

2) to review checklists of conditions seen, activities performed, chiropractic techniques, supportive techniques, and demographic data to determine their relevancy to practice, and ensure that the vocabulary and terminology were appropriate for practicing chiropractors throughout the United States;

3) to review, critique, and approve the report of survey results.

Review of Literature

Literature pertaining to the protocol of conducting a job analysis survey was reviewed. Additionally, literature pertaining to job analyses in chiropractic and other professions was considered in the preparation of the survey instrument and in the collection of the data. A list of

literature reviewed can be found in the bibliography. Following the review of literature, the Practice Model Log was developed.

The Practice Model Log

The Practice Model Log was an instrument developed to be self-administered by a small number of practicing chiropractors in their private offices.

As the survey instrument was originally designed to be administered in the United States, American practitioners were asked to fill out a Practice Model Log sheet (Appendix A) on each of ten consecutive patient visits. The data elicited on each patient visit included the patient's reason for seeking chiropractic care, the nature of the patient's condition, diagnostic and treatment procedures performed, and patient biographical data.

The data gathered from this study were used as an additional source of information about the profession as well as a basis for developing the interim survey form.

The Interim Survey Form

The interim survey form was developed by the NBCE and mailed to the American chiropractors who had participated in the Practice Model Log project. In addition, this survey was distributed to the members of the NBCE Part II Clinical Sciences Test Committees. (National Board Test Committees meet once each year to select items that will appear on NBCE examinations.) These practitioners were asked to fill out the survey form, and to provide written and oral critique of the instrument.

Based on the results of this investigation, the format and content of the preliminary instrument were revised and a draft Survey of Chiropractic Practice was developed.

The Draft Survey of Chiropractic Practice

After careful analysis of the results of the Practice Model Log project and critique of the preliminary survey instrument (the interim survey form), a draft Survey of Chiropractic Practice was prepared. At that time, a meeting was convened at the NBCE headquarters with representatives of the Steering Committee and the National Advisory Committee to review and revise the instrument for distribution in the United States.

One of the issues addressed during this meeting was whether presenting conditions for which the patient might be seeking chiropractic health care should be included with conditions that might be encountered by the chiropractic physician incidental to or in tandem with the presenting condition.

A major factor in the decision to include both presenting and concurrent conditions in the survey was that the chiropractor is a primary care provider in every state; patients may seek chiropractic consultation without a referral or diagnosis by another health care provider. It was noted that once the patient is presented for chiropractic health care, the chiropractor as primary care provider is responsible for:

- identifying the condition(s) that may appropriately be treated within the scope of practice in his/her state;
- making appropriate recommendations or referrals for conditions outside the scope of practice in his/her state.

Based on this and other relevant topics of discussion, a final draft was proposed, and the Survey of Chiropractic Practice was prepared for a field test.

The Field Test

A pilot or field test of the Survey of Chiropractic Practice was designed and administered in the United States to a sample of licensed practitioners of chiropractic to provide data that would be useful in determining the effectiveness of the questionnaire in gathering information on chiropractic practice.

The major points of interest in the field test (Appendix B) were:

-- relevancy of the survey to practice
-- appeal of the questionnaire to the chiropractors chosen to participate (e.g., would they complete and return the questionnaire to the NBCE?)
-- clarity of instructions
-- ease of filling out the questionnaire
-- consistency of the data received from practitioners participating in the field test with what was already known or hypothesized about the profession.

The field test also provided an opportunity for the NBCE to set up the internal organization necessary to produce, distribute, receive, and process completed questionnaires.

Thirty chiropractic practitioners in the United States were selected at random to participate in the field test. Each of the practitioners was notified that he or she would be receiving a Survey of Chiropractic Practice questionnaire, and that this was part of an important research project being conducted by the NBCE for the chiropractic profession.

These surveys were completed by practitioners with reference only to the written directions included with the survey. After the questionnaires were returned, telephone interviews were conducted with all participants to identify any problems they might have experienced in understanding and completing the checklists. Final revision of the United States survey document followed the field test.

The Survey of Chiropractic Practice

Based upon the information obtained from the field test, the Survey of Chiropractic Practice was prepared in the form of a questionnaire which could be self-administered by a large number of practicing chiropractors.

The first two questions on the United States survey asked the current mailing address of the practitioner and whether the practitioner would like a news release sent to a local newspaper indicating their participation in the survey. The survey text then asked the chiropractic practitioners to provide biographical data about themselves: place of birth, gender, level of education, specialty board certification or other specialty qualifications, and length and type of practice experience. The practitioners were also asked to assess their patients in reference to several demographic variables. These questions were included in order to gain a picture of the sample of chiropractors and of their patients, and to allow the comparison of data by various subgroups.

The Printing of the Questionnaire

The approved survey text was then integrated into the desired survey format (Appendix E). This took the form of a 16-page computer-scannable booklet on which doctors of chiropractic were asked to record their responses to survey questions. Aware that thousands of responses would need to be read and recorded accurately, the scannable form was prepared and printed in accordance with all applicable specifications.

The Analysis of Survey Data

Following distribution to United States chiropractors selected at random on a state-by-state basis, the NBCE utilized a National Computer Systems OpScan 21 to scan the approximately 5,000 surveys returned. Data were read onto a hard disk and then transferred to a floppy disk. The data were analyzed using the Statistical Package for the Social Sciences (SPSS). This elaborate set of programs was ideally suited to the computations necessary to the job analysis.

The Publication of the U.S. Job Analysis Report

A report of the survey results was prepared by representatives of the NBCE staff for review and editing by the Steering and Advisory Committees. Following their review, a *Job Analysis of Chiropractic in the United States* was published.

* * *

Conversion of the Survey for Canada

Following the administration of the Survey of Chiropractic Practice in the United States, officials of the Canadian Chiropractic Examining Board (CCEB) and the Canadian Federation of Chiropractic Regulatory Boards requested that the NBCE conduct a similar job analysis in Canada. The NBCE agreed to this request, and provided the necessary funds and personnel to conduct the study.

As in the United States, the Job Analysis of Chiropractic in Canada was viewed as a means of serving chiropractic by assisting the CCEB and the profession in defining the activities performed by chiropractors, and as a guide to understanding the unique skills, and knowledge that chiropractors must possess to successfully perform chiropractic tasks safely and effectively. Through its focus on patient conditions and typical chiropractic activities, the survey data also provided a sound basis for the development and validation of the CCEB's clinically oriented examinations.

In revising the survey instrument to meet Canadian needs, and in maintaining accuracy of terminology and relevancy of text, Doug Lawson, BA, DC, director of Research and Special Projects for the Canadian Chiropractic Examining Board, and André Audette, DC, chairman of the Canadian Federation of Chiropractic Regulatory Boards, were called upon to act as liaisons between the NBCE and their respective organizations. Following an evaluation of the survey instrument administered in the United States, these two individuals reviewed the survey and conveyed the desired revisions.

The original NBCE survey was then modified in accordance with the Canadians' expressed needs. Specifically, two queries relating to the respondent's current mailing address and an optional press release on his/her participation were deleted. In their place, respondents were asked to indicate *what trends or developments during the next decade would be most beneficial and most detrimental to the chiropractic profession.* In addition, the *ethnic origin* of the practitioner and patient was changed to ask their *places of birth.*

Because the reliability and validity of the NBCE survey instrument was verified in the development and administration of the United States survey, additional reliability and validity studies were not undertaken in preparing the Canadian survey.

A copy of the final survey as distributed to licensed chiropractic practitioners throughout Canada appears in the Appendices of this report.

The Canadian Job Analysis Report

A report of the Survey of Chiropractic Practice in Canada was prepared by the NBCE. In addition, a panel of Canadian representatives reviewed the material pertaining to Canadian education and provincial licensure requirements and made suggestions for modifications. Following their review, the *Job Analysis of Chiropractic in Canada* was published. The panel consisted of:

André Audette, DC
Canadian Federation of Chiropractic Regulatory Boards

R. Belyea, DC
Prince Edward Island Chiropractic Association

J.K. Bloomer, DC
Manitoba Chiropractors Association

Laurie Goyeche, DC
Newfoundland-Labrador Chiropractic Association

Doug Lawson, DC
Canadian Chiropractic Examining Board

Carolyn Levere, DC
New Brunswick Chiropractors Association

Marsh McCallum, DC
British Columbia College of Chiropractors

Jean A. Moss, DC, MBA
Canadian Memorial Chiropractic College

James Nykoliation, DC
Canadian Federation of Chiropractic Regulatory Boards

Y. P. Roy, DC
Ordre Des Chiropracticiens Du Quebec

Brian Seaman, DC
College of Chiropractic Sports Sciences (Canada)
Nova Scotia Chiropractic Association

Peggy Sloan
College of Chiropractors of Alberta

C. James Stewart
Chiropractors' Association of Saskatchewan

S.W. Stolarski, DC
Board of Directors of Chiropractic of Ontario

Chapter 5
Administering the Job Analysis Survey in Canada

In preparing to administer the NBCE Survey of Chiropractic Practice, it was necessary to obtain a list of licensed practitioners throughout Canada. The most effective method of acquiring a list of currently licensed practitioners in each province was to contact the licensing boards in each of the ten provinces. Each province responded with a list. The total number of licensed chiropractors from the province lists was 3,261.

In reviewing these lists, it was noted that some chiropractors were licensed to practice in more than one province. To avoid duplication of selection, individuals licensed in provinces other than the one in which they resided were purged from the non-residential province list.

The Northwest and Yukon Territories were not included in the survey. No licensing requirements currently exist for the Northwest Territory and although requirements for licensure are in place for the Yukon Territory, only one chiropractor is licensed to practice there. Responses provided by this individual were not reported to maintain confidentiality.

Standard Error

Sample sizes were determined on a per-province basis so that the accuracy of the inferences made from the data from each province would be approximately the same. This was accomplished by using the standard error equation, an abbreviation for the standard error of estimate, shown below:

$$SE=(SD/Nft^{½})\,(1-Nft/Provft)^{½}$$

SE = **the standard error of estimate** is the standard deviation divided by the square root of the sample size and adjusted for sampling from a finite population. (With a goal of achieving a 5.0% standard error per province, the standard error for the nation would be approximately 2%.)

SD = **the standard deviation** is a measure of variability, spread, or dispersion of a set of scores around their mean value. For questions reported as a percent, the maximum SD is 50, which was used in determining sample sizes for each province.

Nft = the number of full-time chiropractors returning surveys

1/2 = the square root

Provft = the estimated number of full-time chiropractors in each province

$(1\text{-Nft/Provft})^{1/2}$ = the square root of the finite population correction term

It was estimated that a 50% survey return rate would be obtained. Thus, to achieve the goal of a 5% standard error per province, the sample size for each province (determined by applying the above formula) was doubled to ascertain the actual number of job analysis survey booklets to be mailed.

In some provinces, the actual number of licensed chiropractors was less than the number required to have a 5% standard error. In those provinces, surveys were mailed to all licensed chiropractors to reduce the standard error as much as possible.

Selection Process

The selection of chiropractors to participate in the study was made on a province-by-province basis. As stated, in provinces having relatively few licensed chiropractors, every chiropractor on the list was requested to participate in the study. In provinces with large numbers of licensed chiropractors, a sequential selection process was utilized. The actual sequence depended on the population of chiropractors and the predetermined sample size to be selected from that population.

For example, in British Columbia, the total number of chiropractors on the list provided by the provincial licensing board was 485. Given the desired sample size of 160, the number of licensed chiropractors to be sent surveys was approximately one out of every three. To select the chiropractors to whom surveys would be mailed, the first name was chosen at random; every third person thereafter was also selected.

Utilizing procedures appropriate to selecting the correct number of participants from each province (as described above), 982 were chosen from the province lists containing the total 3,261 names.

Pre-Notification

Pre-notification was considered to be an important step in the administration of the questionnaire. Previous studies on survey techniques have shown that survey response rates are highest when those selected for participation:

- perceive the research to be of value
- are informed that the research is to be conducted by one or more recognized and respected organizations
- receive preliminary notification and request for participation.

Higher response rates reduce the potential for bias in the inferences made from survey data. Previous studies also suggest that preliminary communication with selected participants results in an earlier return of completed surveys.

With the survey, a preliminary survey letter was deemed the most cost-effective method of preliminary notification. The pre-survey letter (Appendix C) was sent to all who were selected. The letter informed those selected of the upcoming survey, emphasized the importance of their participation in a "milestone study of chiropractic practice," and noted an approximate date they could expect to receive the survey form.

The pre-survey letters were marked "Do Not Forward" and "Address Correction Requested" as forwarding could potentially upset the geographic balance and standard error estimates. It was also important to have returned to the CCEB current address information on all those chosen to participate.

A few letters were returned with notations such as "moved," "left no forwarding address," and "unknown." No new chiropractors were selected to replace those individuals who could not be contacted; this factor was expected and accounted for when the initial sample was selected.

Survey Distribution and Tracking

Within three weeks of distributing pre-survey letters which informed individuals of their selection to participate in the survey, selectees were sent a survey (Appendix E) and cover letter (Appendix D). The cover letter again stressed to the individual that the results of the survey would be used to prepare a comprehensive report describing the chiropractic profession and documenting future examination needs for the CCEB. It was also re-emphasized that participation in the survey would be critical to the success of the study. Selectees were asked to return the completed survey to the CCEB within three weeks of receipt. For tracking purposes, each survey was numbered.

Increasing the Rate of Response

As previously stated, one of the biggest challenges in administering surveys of this proportion is gaining cooperation from the selectees. In addition to conveying the importance of the study and of the individual's input, several steps were taken to ensure a high response rate.

Recognizing that a significant block of time would be required for completion of the

survey, without benefit of monetary compensation, several steps were taken to keep the text as succinct yet thorough as possible. The final version of the survey was designed to require approximately 30 or 40 minutes to complete. To further facilitate questionnaire completion, a No. 2 pencil and a stamped, self-addressed envelope were supplied with each survey packet.

In lieu of monetary compensation, the NBCE offered to list their names in the project report (Appendix F). Their names were published in this report only if affirmatively indicated by the respondent on the survey form.

Identifying Active Full-time Practitioners

Survey data were captured on a hard drive for analysis by computer. It was then necessary to identify those chiropractors engaged in active, full-time chiropractic practice, since this group was considered to be most appropriate for this study. Moreover, since the lists of licensed chiropractors did not provide this information, it was a question on the first page of the survey.

Survey question #4 asked participants if they were currently in active full-time chiropractic practice. The survey did not specify any hourly requirements that defined full-time practice. Instead, it was left to the individual practitioner as to whether their practice should be considered full-time. Only those surveys on which respondents indicated that they were practicing full-time were included in subsequent analyses. Final data computations were based on 587 respondents.

Individuals who considered their practices to be part-time were instructed not to answer any further questions, but to return the questionnaire in the postage-paid envelope.

Reliability of Results

The initial survey data obtained in the United States were determined to be reliable. The following procedure describes the steps taken in assessing the reliability of the survey data gathered in the United States.

Reliability refers to the extent to which test scores, survey results, or the data obtained from other measurements are accurate. It "concerns the extent to which an experiment, test, or any measuring procedure yields the same results on repeated trials" (Carmines and Zeller 1987).

The score a person obtains on an examination or the response a person gives to survey stimuli may or may not be an accurate representation of that individual's typical behavior or response. To determine how accurate results are, it is important to administer the test, survey, or other measurement device on more than one occasion. "The more consistent the results given by repeated measurements, the higher the reliability of the measuring procedure" (Carmines and Zeller 1987).

To assess the reliability of the United States survey data, a second questionnaire was sent to a randomly selected chiropractor in each state. This second questionnaire, a scrambled version of the first ("Types of Conditions" and "Activities Performed" were put in reverse order; other information remained in the same order as the original survey), was utilized to determine how consistently individuals would respond to the same questions after a period of time had elapsed (two to four weeks), and to determine how consistent responses were to the same questions when those questions appeared in a different order. The second questionnaire also served to support the reliability and validity of the original survey results:

> "Evidence that a job inventory possesses sufficient reliability - that is, provides trustworthy information - usually is obtained by studying the degree of agreement between at least two different views of the same inventory content. If a job inventory is administered twice within a short time period to the same sample, the results obtained should be essentially the same for both administrations" (Gael 1987).

To encourage completion of the second questionnaire, the chosen representatives received a phone call thanking them for their initial participation in the survey and asking them to complete the second questionnaire. (Forty of the 50 who received the second survey form completed and returned it.)

Once the second questionnaire was completed and returned to the NBCE, correlation coefficients and "*t -tests*" were calculated in order to compare the original responses with the repeat responses on the 45 activities and 108 conditions presented in the survey. (A t-test is used to determine whether two arithmetic averages differ significantly from each other.)

In the case of the NBCE job analysis survey, the t-test was used to determine whether the means obtained from a second administration of the same survey (the scrambled form) were the same as the means obtained from the initial administration (the unscrambled version). There were no significant differences ($p > .05$) in the responses to the 45 activities or the 108 conditions presented in the two surveys. Additionally, correlation coefficients of 0.97 and 0.99, respectively, were obtained between pairs of responses to the 45 activities and the 108 conditions.

Validity

Validity as it pertains to examinations, survey instruments, or other measurement tools, refers to the appropriateness, meaningfulness, and usefulness of inferences about results (APA 1985).

Two separate and distinct validity issues are the concern of this report. The first issue pertains to the validity of the survey data; the second concerns use of survey data to establish the content validity of a national competency exam. Each of these validity issues will be discussed.

Evidence that survey data are an accurate reflection of chiropractors, chiropractic patients, and the practice of chiropractic in Canada is based on the procedures followed in the development of the survey form. Additional evidence of the validity of survey data is the similarity between various survey findings and other published reports addressing the same information. Finally, demonstrated reliability of job analysis findings is accepted as evidence of survey validity.

> "Because of the difficulty associated with establishing job inventory validity, validity is often assumed if the inventory data are reliable. While reliability is not a substitute for validity, high agreement between respondents is an indication that the job inventory data are valid" (Gael 1987).

Survey Response Results

Of the 982 surveys sent to Canadian practitioners, 683 were returned to the National Board. From the information annotated on returned surveys and on pre-survey letters, the following information was obtained concerning the 982 selectees: 587 were in full-time practice and returned the completed survey to the NBCE (survey results were based upon the responses from these individuals); 88 were in part-time practice; 8 were retired; and 11 could not be located through postal delivery.

Thus, of the 982 selectees, 683 (69.6%) were accounted for. Consideration was given to obtaining responses from the 30.4% who were not accounted for; however, since these individuals had been sent pre-survey letters and surveys, it was considered too expensive and too time-consuming to further attempt to obtain responses.

The Weighting Factor

Of particular interest is the *weighting* given to each response. For example, in the province of Alberta, there were an estimated 359 full-time licensed chiropractors. Of those 359, 116 chiropractors completed and returned the survey. The weight given to Alberta is 3.1* because 116 times 3.1 equals 359, the estimated total number of full-time chiropractors. The weighting factor was necessary in order to have the combined (individual provinces) data represent the national population. (Except where noted, all of the information in this document was weighted.)

Page 49 contains tabulated information detailing the survey responses. This table of figures represents the number of surveys mailed to provinces based upon original mailing

* To save space, values in the table include only one decimal place. In actuality, all values were computed to several decimal places.

addresses; in some cases, surveys were forwarded if a person had moved and had a forwarding address. The return rate in the table was based upon returns as of August 31, 1992.

The following abbreviations were used in the table.

Norig = Number of chiropractors listed on the **original list** provided to the NBCE by provincial licensing boards

Nmail = Number of surveys **mailed**

Npt = Number of **part-time** chiropractors returning surveys

Nret = Number of **retired** chiropractors returning surveys

Nft = Number of **full-time** chiropractors returning surveys

Provft[1] = Estimated number of **full-time** chiropractors in each province **Provft = Nft/ (Npt + Nret + Nft) *Norig**

wt = **Weight** (or emphasis) given to each survey within a province when computing national summary statistics: **(wt = Provft / Nft)**

%ft = Nft as **percent** of Provft **(%ft = Nft / Provft *100)**

%iden[2] = **[(Npt + Nret + Nft) / Nmail] *100**

SE = **The standard error of estimate** is the standard deviation divided by the square root of the sample size and adjusted for sampling from a finite population. With a goal of achieving a 5.0% standard error per province, the standard error for the nation would be approximately 2.0%. (This was calculated for percentage responses where the maximum standard deviation would be 50.)

$$SE=(SD/Nft^{½})\ (1-Nft/Provft)^{½}$$

SD = **The standard deviation of responses to a survey question.** For questions reported in the study as a percent, the maximum SD is 50; for questions reported on a 0-4 scale (Conditions, Frequency, Risk) the maximum SD is 1.5; for questions reported on a 0-16 scale (Importance) the maximum SD is 5.6; the question for which the response could range

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[1] This may be an over-estimate of the number of full-time practitioners. It is probable that a high proportion of the survey forms and other correspondence sent to part-time and retired chiropractors was not returned to the NBCE.

[2] As indicated in the formula for calculating this percentage, this includes any type of response in which the status of the selected individual was identified.

* Denotes multiplication

from 0-20 (number of adjustive techniques utilized) the SD is 2.6 for the number of techniques utilized; the question for which responses could range from 0-25 (number of non-adjustive techniques utilized) the SD is 4.2 for the number of techniques utilized.

$(1\text{-Nft/Provft})^{½}$ = The square root of the finite population correction term

The table below indicates information on a province-by-province basis regarding survey respondents.
Please note that a more complete and accurate explanation of category headings and data precedes this table.

CANADIAN PROVINCE	Norig	Nmail	Npt	Nret	Nft	Provft	wt	%ft	%iden	SE
	Chiropractors on original list provided by licensing agency in indicated province	Total number of licensed chiropractors	Surveys mailed	Part-time*	Retired*	Full-time respondents	Estimated full-time in each province	Weight given a province	Nft as % of Provft	Number identified as % of Nmailed	Estimated maximum standard error
Alberta	381	156	7	0	116	359	3.1	32	79	3.8
British Columbia	485	160	15	2	107	419	3.9	26	78	4.2
Manitoba	132	132	6	0	73	122	1.7	60	60	3.7
New Brunswick	31	31	3	0	16	26	1.6	62	61	**
Newfoundland	11	11	0	0	8	11	1.4	73	73	**
Nova Scotia	22	22	8	1	6	9	1.5	67	68	**
Ontario	1299	180	23	3	99	1029	10.4	10	69	4.8
Prince Edward Island	3	3	0	0	1	3	3.0	33	33	**
Quebec	773	166	18	1	87	634	7.3	14	64	5.0
Saskatchewan	124	121	8	1	74	111	1.5	67	69	3.3
NATIONAL TOTAL	3261	982	88	8	587	2723	NA	NA	70	2.0

* These individuals received and returned uncompleted surveys due to their non-qualifying status, ie. not in full-time chiropractic practice.
** For the analysis, data from the Maritime provinces were combined. The standard error for the four provinces combined was 5.4.

TABLE 5.1
Sample and Response Data by Province

Chapter 6
Overview of Survey Response Data

For ease of reference, a summary of the Canadian survey response data appears in this chapter. Addressed in capsulized form is the chiropractic practitioner, the patient, the patients' conditions, and activities or treatments typically performed.

The "Typical" Chiropractor

The NBCE job analysis survey generally depicts the typical chiropractor as a Canadian-born male who, in addition to receiving a chiropractic degree, has attained a baccalaureate degree or beyond (Table 6.1). The practitioner receives referrals from and makes referrals to medical and osteopathic physicians.

The typical chiropractor does not have post-graduate certification or specialty training, is the only doctor in the office, and practices in one location. On occasion, chiropractic care is delivered outside the office setting, which may include hospitals.

The characteristic chiropractor has been practicing in the same location for an entire career which has spanned five to 15 years or longer. Weekly practice consists of 36.5 hours with the majority of time spent on direct patient care, followed by time spent on patient education, and business management.

The "Typical" Patient

A typical patient may be profiled as a Canadian-born woman, 31 to 50 years of age.

Canadian Practitioner/Respondent Demographic Summary*

GENDER

Male	87%	Female	13%

PLACE OF BIRTH

Canada	88.1%	Belgium	0.5%
U.S.A.	4.4%	Switzerland	0.0%
Other	4.2%	Australia	0.0%
Britain	2.3%	New Zealand	0.2%
France	0.3%		

Highest Level of NON-CHIROPRACTIC EDUCATION

Baccalaureate Degree	45.7%	Associate Degree	5.6%
High School Diploma	28.5%	Master's Degree	4.0%
Other	15.6%	Doctoral Degree	0.6%

****SPECIALTY BOARD CERTIFICATION**

None/Does not apply	88.2%
Other	4.0%
American Board of Chiropractic Orthopedists	2.4%
Canadian Specialty Certification Program	2.9%
American Chiropractic Board of Radiology	1.8%
ICA College of Thermography	0.7%
ICA College on Chiropractic Imaging	0.3%
Chiropractic Rehabilitation Association	0.3%
American Chiropractic Academy of Neurology	0.1%
American Chiropractic Board of Nutrition	0.1%
American Chiropractic Board of Sports Physicians	0.1%
American Board of Chiropractic Internists	0.0%
ICA Council on Applied Chiropractic Sciences	0.0%

INSTITUTION GRANTING DEGREE

Canadian Memorial	75.1%	Other	0.8%
Palmer	14.4%	Northwestern	0.7%
Life	1.8%	Life West	0.5%
Logan	1.5%	Cleveland-LA	0.3%
Western States	1.3%	Parker	0.2%
Palmer West	1.1%	Texas	0.1%
Cleveland-KC	0.9%	Los Angeles	0.1%
National	0.8%	Anglo-European	0.1%

* See Appendix for complete listings

**These numbers add up to more than 100% because some practitioners have more than one specialty.

TABLE 6.1

Overall, patients cover a wide range of occupations, with no occupational group having a majority. According to survey responses, chiropractic patients seen most frequently were from the following occupational groups: white collar/secretarial, tradesmen/skilled laborer, and homemaker (Table 6.2).

Summary of Reported Canadian Patient Demographics*

GENDER			
Male	40.6%	Female	59.4%
AGE			
17 or younger	11.2%	51 to 64	19.4%
18 to 30	20.6%	65 or older	11.6%
31 to 50	37.2%		
PLACE OF BIRTH			
Canada	70.4%	Switzerland	2.0%
U.S.A.	7.2%	Australia	2.6%
Britain	5. 8%	New Zealand	1.9%
France	3. 1%	Other	5.4%
Belgium	1. 6%		

OCCUPATION	
White collar/Secretarial	17.7%
Tradesman/Skilled Labor	17.6%
Homemaker	13.7%
Unskilled Labor	12.2%
Executive/Professional	11.5%
Retired or other	10.3%
Student	8.6%
Professional/Amateur athlete	8.3%

TABLE 6.2

Conditions

On a daily basis, the typical chiropractic practitioner will likely see patients who have spinal subluxations/joint dysfunctions and headaches.

In a typical week, a doctor of chiropractic is also likely to see patients who have various musculoskeletal and neurological conditions. The musculoskeletal conditions often seen, in decreasing order of frequency, are osteoarthritis, degenerative joint disease, vertebral facet syndrome, muscular strain/tear, extremity subluxation/joint dysfunction, tendinitis/tenosynovitis, hyperlordosis of the cervical or lumbar spine, intervertebral disc syndrome, sprain or dislocation of any joint, bursitis or synovitis, and kyphosis of the thoracic spine.

The neurological conditions often seen are peripheral neuritis or neuralgia and radiculitis or radiculopathy. Miscellaneous disorders which are often seen are high or low blood pressure, allergies, and obesity.

Diagnosis and Case Management

In assessing new patients and their conditions, chiropractic practitioners routinely take case histories; perform physical and neuromusculoskeletal exams; and arrive at a diagnosis or clinical impression on the basis of history and examination findings. Frequently the practitioner will take X-rays on a new patient.

As the patient's condition changes, or as the patient presents with a new condition, the case

history is updated, the case management is revised, and the patient is encouraged to make appropriate lifestyle changes as part of routine chiropractic care.

The typical Canadian chiropractor utilizes 4.7 chiropractic adjustive techniques, with the most frequently utilized technique being Diversified. Chiropractors utilize an average of 10.3 non-adjustive techniques (including making various recommendations) that are supportive to the chiropractic adjustment.

Corrective or therapeutic exercise was recommended by 96.5% of the practitioners during the past two years, while approximately two-thirds or more of the practitioners utilized or recommended the following: Ice Pack/Cryotherapy (87.9%), Bracing (80.9%), Orthotics/Lifts (77.8%), Nutritional Counseling, therapy or supplements (76.2%), Massage Therapy (70.1%), Bedrest (67%), Accupressure/Meridian Therapy (66.3%).

Summary of Routine Chiropractic Activities

The overview of chiropractic practice suggested by the data is that a chiropractor uses case history activities supported by physical examination, neuromusculoskeletal examination, and radiographic examination to make a diagnosis or clinical impression and to determine the appropriateness of chiropractic care for the individual patient.

In general, the doctors felt that lack of appropriate performance in these categories when indicated may present risk to the patient. These doctors also routinely used, among other things, chiropractic examination and adjustive/manipulation techniques, as well as frequently using supportive procedures in treating their patients.

Chiropractors routinely used case management activities such as encouraging patients to make appropriate changes in habits or lifestyle, and modifying intervention strategies as the patient's condition changes. They frequently discussed alternative courses of action with patients and recommended or arranged for services of other health professionals when necessary.

Respondent Comments

The first question on the survey asked the respondent "What trends or developments during the next decade would be most **beneficial** to the chiropractic profession?" A total of 535 chiropractors responded to this question. The ten most frequently reported trends/developments that would be most beneficial to the chiropractic profession included:

- increasing chiropractic research into the efficacy/cost effectiveness of chiropractic treatment (28% of respondents)
- increasing public relations/education concerning benefits of chiropractic care (23% of respondents)
- establishing standards of care/practice guidelines for chiropractic practice (21% of respondents)

- obtaining hospital privileges/access to hospital laboratories and imaging facilities for chiropractors; rights for chiropractors to refer patients to hospital diagnostic facilities and physiotherapy labs (18% of respondents)
- improving interprofessional cooperation and open lines of communication with other health professionals including referral of patients to chiropractors by medical doctors (17% of respondents)
- making available full health coverage for chiropractic services in public and private health insurance plans; parity with medical coverage (13% of respondents)
- including chiropractic education within the university system (11% of respondents)
- unifying chiropractors and chiropractic associations (8% of respondents)
- updating and refining chiropractic philosophy (5% of respondents)
- maintaining a separate identity for the chiropractic profession (4% of respondents)

Other issues mentioned by respondents included:

- laws to restrict "manipulation" for exclusive use by the chiropractic profession
- increasing the scope of chiropractic practice
- improving chiropractic education
- developing new/improved chiropractic adjusting techniques
- increasing emphasis on patient care as opposed to other components of practice

The following are summarized responses to the question"What trends or developments during the next decade would be most **detrimental** to the chiropractic profession?" A total of 535 chiropractors responded to this question. Their responses included:

- Loss of professional identity (14% of respondents)
- Manipulation by MDs or physiotherapists (13% of respondents)
- Proliferation of practice management/practice-building seminars (10% of respondents)
- Exclusion of chiropractic services from public/private health insurance plans (9% of respondents)
- Professional disunity (9% of respondents)
- Limiting the scope of chiropractic practice (7% of respondents)
- Lack of adequate public relations/public education about the benefits of chiropractic care (6% of respondents)
- Absorption by the medical profession or becoming secondary providers, ie. manipulation by prescription (6% of respondents)

Other issues mentioned by respondents included:

- development of unrealistic or restrictive practice guidelines/standards of care that inhibit patient care
- government over-regulation of chiropractic practice
- loss or revocation of existing chiropractic practice statutes
- medical slander against the chiropractic profession

- non-support of chiropractic colleges by chiropractic practitioners
- failure of chiropractic colleges to achieve affiliation with the university system

Survey Instrument

The survey also contained a section in which respondents could write any general comments they would like to make about the survey. The majority of comments noted on the survey instrument were general in nature, and were intended to reflect an overall impression of the NBCE job analysis project.

The three most reported general comments were : "I had difficulty with the risk factor scale and with the listings of presenting and concurrent conditions in the survey" (34% of general comments); "I had difficulty with (some part) of the survey due to the restrictive practice law (primarily with access to laboratory and special study facilities) in my province" (27% general comments); and "Congratulations/well done/it's about time a survey of this type was done for the chiropractic profession" (25% of general comments).

Activities

Another large group of comments dealt with the Activities section of the survey. Most of these comments suggested that the NBCE should have included questions about the importance of patient education about chiropractic health care and/or patient responsibilities for health maintenance (56% of comments).

Another activity respondents felt should have been included was routine vertebral artery patency testing (15% of comments). Other recommendations included:

- Routine general health questionnaire to be filled out by patient or chiropractic assistant
- Routine patient counseling on general health matters
- Maintaining adequate patient radiation protection measures and monitoring patient radiation exposure
- Routine referral of patient x-rays to chiropractic radiologist
- Routine monitoring of patient blood pressure
- Routinely obtaining informed consent from patient for treatment

Technique

The following techniques were recommended (usually by no more than one or two respondents per technique) for inclusion in the survey:

- Magnetic field therapy
- Colonic irrigation therapy
- Laser therapy
- Emergency techniques/CPR
- Muscle testing (diagnostic)
- Allergy testing

Chapter 7
The Chiropractic Practitioner in Canada

This chapter examines the demographic data pertaining to the chiropractic practitioner/ survey respondent. The survey questions began with personal data, then addressed education, specialization, work environment, and more.

Preliminary Criteria

Following some preliminary questions, the survey sought to qualify each respondent. As discussed in Chapter 5, the only criteria for participation was that the individual be a licensed, full-time practitioner of chiropractic.

Question number 4 on the first page of the survey asked if the respondent was currently in active full-time chiropractic practice.

If the individual answered "no" to this question, he/she was instructed to return the uncompleted questionnaire. Approximately 87% of practicing respondents reported their practice to be full-time (Figure 7.1).

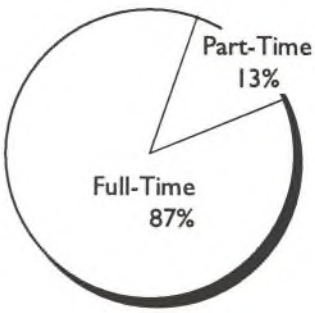


FIGURE 7.1
Full-time Respondents*

The next question asked the participants how many hours per week they devoted to their practices. The number of hours reported averaged 36.5 (Figure 7.2).

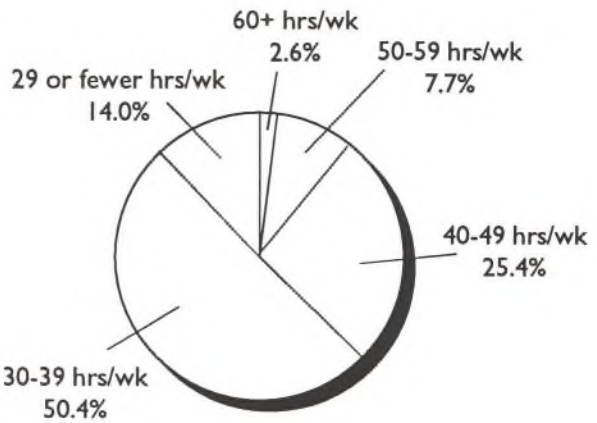


FIGURE 7.2
Hours per Week*

*Data are not weighted

Personal Demographics

In addition, the full-time practitioners who participated in the study were asked to provide demographic data about themselves.

The survey responses here revealed that 87% of the participants were male and 13% were female. These figures are consistent with information taken from the *United States Job Analysis of Chiropractic*. Those statis-

tics indicate that 86.2% of American practitioners are male and 13.8% are female.

Place of Birth

Overall, 88.1% of the respondents were Canadian-born while the remaining were born in the U.S.A., Britain, Belgium, France, New Zealand, or another country (Figure 7.3).

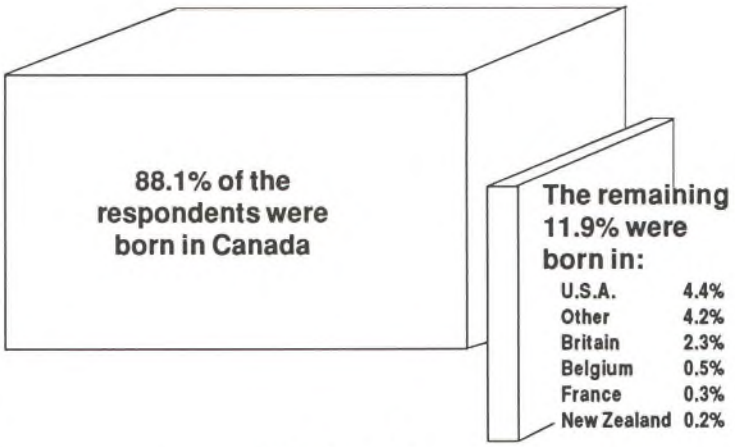


FIGURE 7.3
Respondent's Place of Birth

Level of Education

The participants were asked to mark the highest level of non-chiropractic education they had achieved. Half of the respondents had four-year degrees or beyond. Specifically, 45.7% had a baccalaureate degree, 4.0% had a master's degree, and 0.6% had a doctoral degree. The "other" category primarily contained practitioners who had two or more years of university study (Figure 7.4).

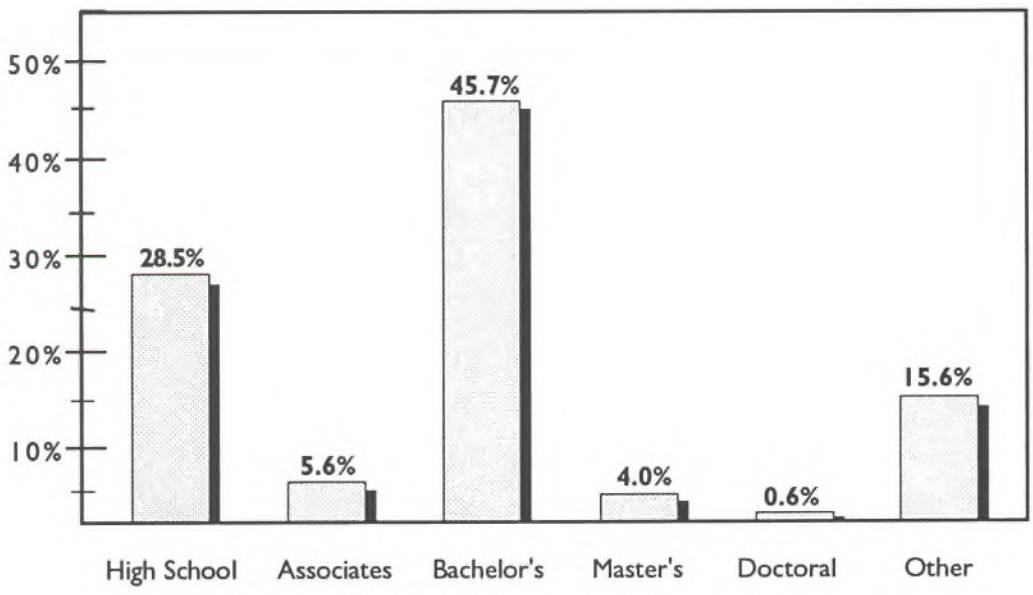


FIGURE 7.4
Non-chiropractic Education

Specialization

Concerning post-graduate specialty board eligibility or certification, 88.2% had none, and 4.0% indicated they had certification in areas other than those listed (Table 6.1). (This percentage was actually 6.9%; however, a study of the "other" category revealed that 2.9% had completed a Canadian specialty certification program, and the additional 4.0% had partially completed a program or had completed a specialty program that was not listed.)

Chiropractic Colleges Represented

Respondents next indicated the college which conferred their Doctor of Chiropractic degree (Table 7.1). The percent of graduates from each Chiropractic college was as follows:

Canadian Memorial	**75.1%**	**Other**	**0.8%**
Palmer	**14.4%**	**Northwestern**	**0.7%**
Life	**1.8%**	**Life West**	**0.5%**
Logan	**1.5%**	**Cleveland-LA**	**0.3%**
Western States	**1.3%**	**Parker**	**0.2%**
Palmer West	**1.1%**	**Texas**	**0.1%**
Cleveland-KC	**0.9%**	**Los Angeles**	**0.1%**
National	**0.8%**	**Anglo-European**	**0.1%**

TABLE 7.1
Source of Chiropractic Degree*

Respondents' Work Environment

Relative to the respondents' work environment, 62.2% of those participating in the survey indicated they currently practice in a setting as the only doctor in the office, while 37.3% indicated there are two or more doctors in the office in which they practice. Less than 0.6% indicated that they are working either as a junior associate, examining doctor or in a capacity other than those previously reported.

Practice Locations

Concerning whether those completing the survey currently practice in one or more office location, approximately 83% indicated one location while 17% said they practiced in more than one location (Figure 7.5).

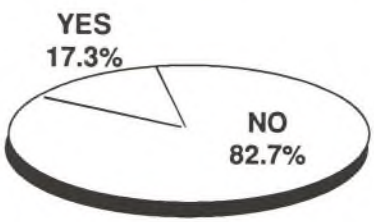


FIGURE 7.5

Do you practice in more than one office location?

* See Appendix for complete listing of colleges.

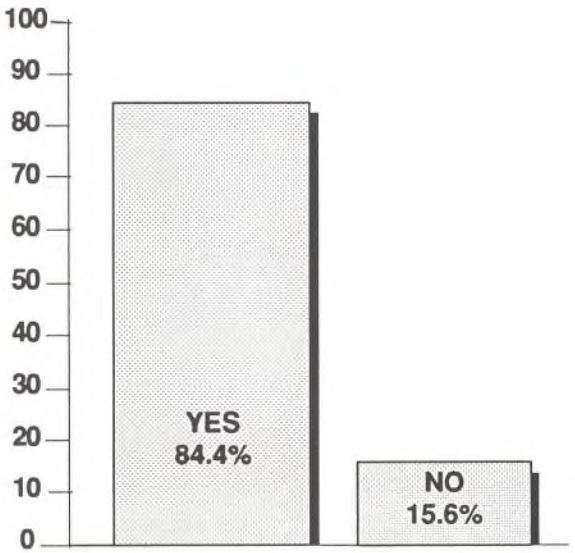


FIGURE 7.6
Do you ever deliver chiropractic care outside an office setting?

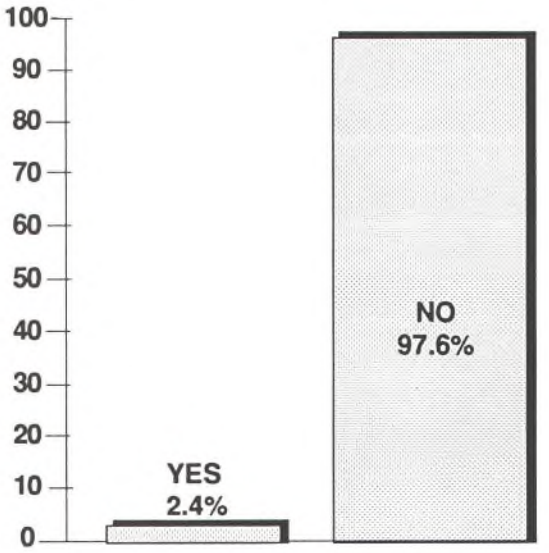


FIGURE 7.7
Do you have staff privileges at a medical or osteopathic hospital?

Delivery of Care

In regard to whether the respondents EVER delegate certain patient care to a chiropractic assistant, 34.7% said "yes" while 65.3% indicated "no" (Figure 7.8).

Concerning the occasional delivery of chiropractic care outside the office setting, 84.4% indicated they do while 15.6% said they do not deliver care outside the office setting (Figure 7.6).

FIGURE 7.8
Do you delegate some of your patient care to a chiropractic assistant?

Hospital Staff Privileges

In regard to having staff privileges at a medical or osteopathic hospital, 2.4% said they do while 97.6% indicated they do not (Figure 7.7).

Chiropractors referred to and received referrals from medical and osteopathic physicians. Of the survey respondents, 94.2% reported that they had received referrals from medical and osteopathic physicians within the past two years, while 5.8% indicated they had not.

Experience and Orientation

The initial survey questions established how long the practitioners had been practicing in the province in which they are currently located. In answer to these questions, 42.9% said they had been practicing for 5 to 15 years in their current province, another 32.3% had been

practicing for more than 15 years while 24.8% indicated they had been practicing for less than 5 years (Figure 7.9).

Total Length of Practice

Responses as to how long they had been in practice altogether, including their current province and other provinces or countries, were very similar to the previous survey question regarding experience and orientation. A total of 45.3% had been practicing 5 to 15 years, 33.7% had been practicing more than fifteen years while 21% had been practicing less than five years (Figure 7.10).

Clinical Orientation

When asked to indicate the type of clinical orientation the survey respondents had received in their first practice setting, the following responses were given as indicated

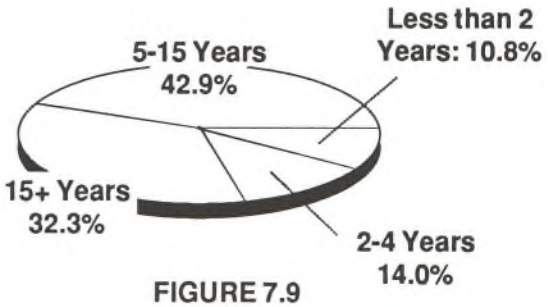


FIGURE 7.9

How long have you been in practice in the province in which you are currently located?

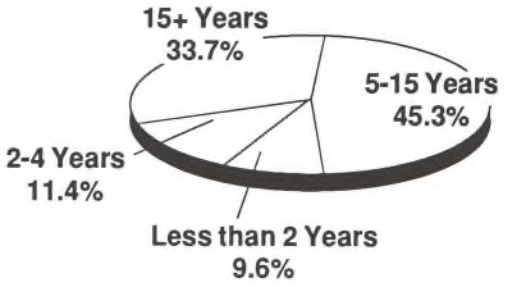


FIGURE 7.10

How long have you been practicing altogether?

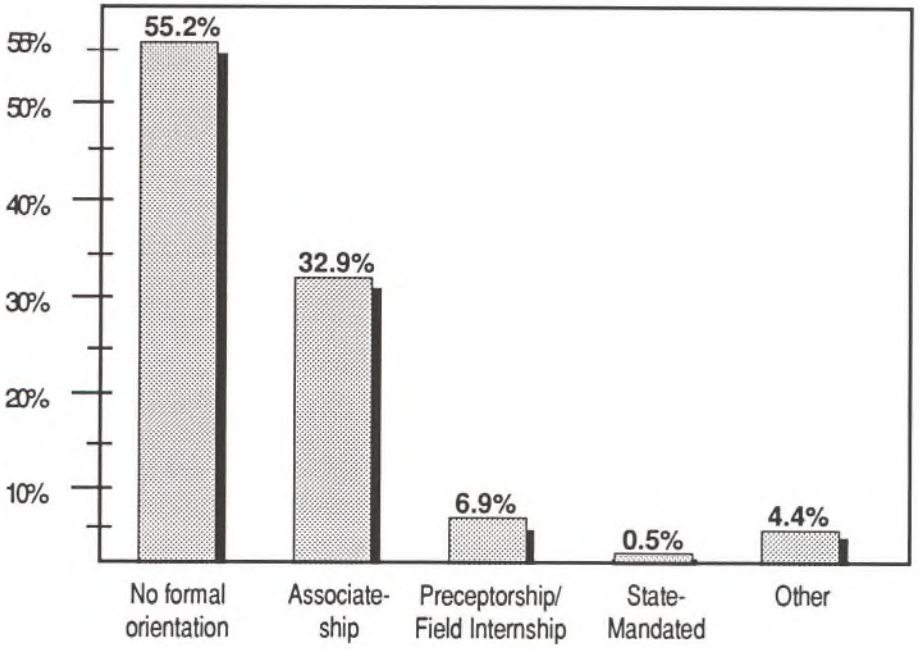


FIGURE 7.11

What kind of orientation did you receive in your first field practice setting?

in Figure 7.11: 55.2% indicated they had received no formal orientation, 32.9% said they had an associateship while 6.9% indicated they had a preceptorship or field internship. Two other categories were designated by 5% or fewer of the respondents.

Breakdown of Time/Types of Patients

In exploring the percentage of time chiropractors typically spend on various aspects of their practices (Business management, Direct patient care, Patient education, and Research), information was gathered by way of a percentage scale with five answer choices. Additionally, respondents indicated patient Sex, Age, Place of birth, and Occupation on a similar 5-point scale.

The mid-point of the percentage range was utilized to calculate each overall percentage

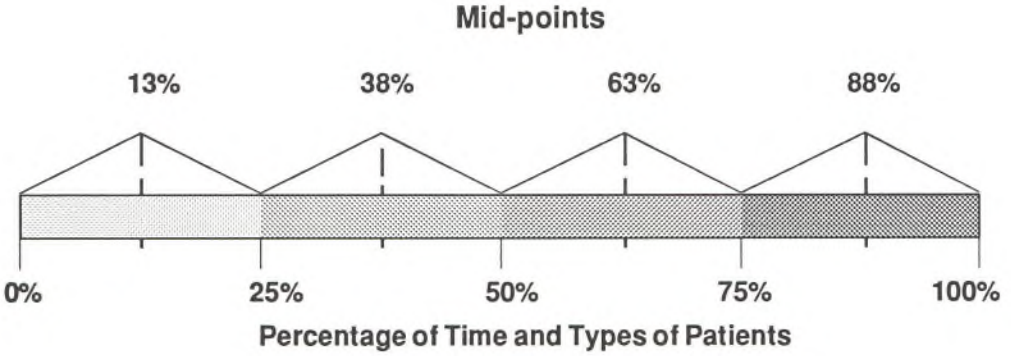


FIGURE 7.12

A mid-point of the percentage range was utilized to calculate an overall percentage for practitioner's use of time and patient demographics (pages 3-4 of the survey).

(Figure 7.12). For example, if the respondent indicated that 1-25% of his/her time was spent on research, this was converted to a mid-point of 13%. In like manner, the 26-50% answer choice was converted to a mid-point value of 38%; 51-75% to 63%; and 76-100% to 88%. (Data were scaled within each question so that the score totaled 100%.)

By scoring responses in this manner, an average percentage was calculated. (Standard errors for these questions were similar to other questions reported on a percentage scale.) The respondents indicated that 64.9% of their time is typically spent on direct patient care, while patient education involved 18.6% of their time, with approximately 11.9% spent on business management. Little or no time (4.6%) was spent on research. (Percentages for patient demographic data were obtained in the same manner and are reported on pages 52 and 64.)

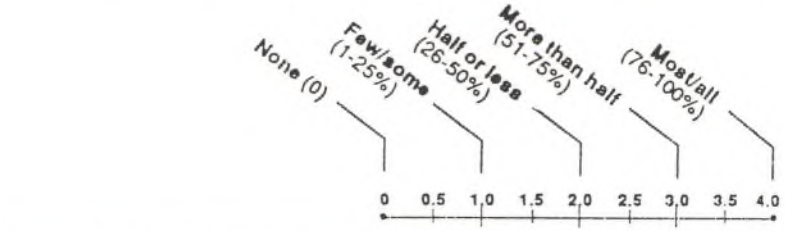
Chapter 8
The Chiropractic Patient in Canada

In this chapter, information gathered from Pages 4-8 of the job analysis survey is explored. This portion of the survey relates to the chiropractic patient as perceived by the practitioner/ respondent.

The survey asked that practitioners describe their patients in terms of gender, age, place of birth, occupation, and condition. A typical patient is an individual who enters a chiropractor's office complaining of some specific pain symptomology: a headache of one type or another; a pain in the middle or lower back, neck, shoulder, arm, leg, or other area, all of which may or may not be concurrent with a spinal subluxation or other joint dysfunction. As a result of proper history taking, physical examination, neuromusculoskeletal examination, and other diagnostic procedures, a diagnosis is made which may or may not include a subluxation.

In completing the portion of the survey relating to the patient, the respondent chiropractors were asked to estimate the distribution of patients in each of the indicated categories.

A five-point scale combining percentages with a corresponding label for each segment of the scale was used. The responses in each category were averaged. The results appear in Table 8.1 and in charts throughout this chapter.



Canadian Patient Demographics		AVG
SEX	Male	1.91
	Female	2.61
AGE	17 or younger	0.98
	18 to 30	1.44
	31 to 50	2.27
	51 to 64	1.38
	65 or older	0.99
PLACE OF BIRTH	Canada	3.69
	U.S.A.	0.63
	Britain	0.50
	France	0.27
	Belgium	0.14
	Switzerland	0.18
	Australia	0.23
	New Zealand	0.17
	Other	0.42
OCCUPATION	Executive/Professional	1.22
	White Collar/Secretarial	1.64
	Professional/Amateur Athlete	0.94
	Tradesman/Skilled Labor	1.63
	Unskilled Labor	1.24
	Homemaker	1.36
	Student	1.02
	Retired or Other	1.14

TABLE 8.1

Sex/Gender of Patients

Chiropractors estimated that half or fewer of their patients are male (40.6%) while more than half (59.4%) are female (Figure 8.1). These data are consistent with information from the *United States Job Analysis of Chiropractic* that indicated 40.7% of chiropractic patients are male while 59.3% are female.

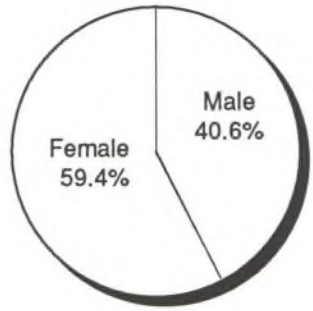


FIGURE 8.1
Patient Gender*

Age of Patients

In relation to age, 11.2% of patients were age 17 or younger; 20.6% were 18 to 30; 37.2% were 31 to 50; 19.4% were 51 to 64; and 11.6% were 65 or older (Figure 8.2).

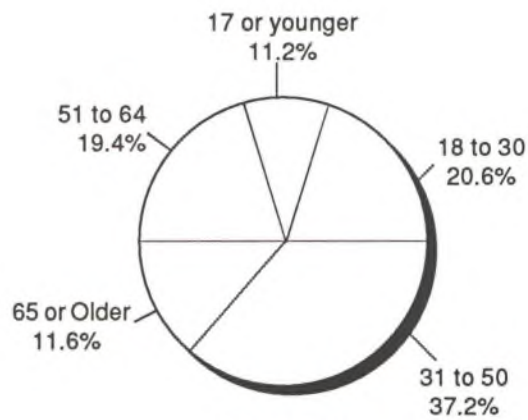


FIGURE 8.2
Patient Age*

Place of Birth

The patient's place of birth was primarily in Canada. Patients born in the U.S.A., Britain, and "other" were the next most frequently treated group of patients (Table 8.1).

Patient Occupation

Concerning patient occupation, no single occupational group is one which chiropractors treat predominately. All groups are represented and no single occupational group appears to represent more than 17.7% of chiropractic practice (Figure 8.3).

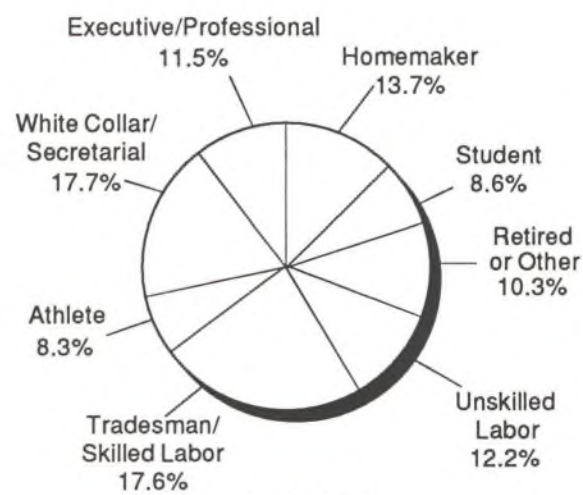


FIGURE 8.3
Patient Occupation*

Patient Conditions

Following the section on patient demographics, chiropractors were asked to consider their practices during the past two years, and indicate how often they had seen patients with

* See page 62 for explanation of percentages.

the **presenting and/or concurrent** conditions listed. A zero-to-four rating scale was used. The list of conditions used on the survey form and reflected in this report was not meant to be all-inclusive. Listed below are conditions seen by chiropractors in descending order of frequency.

Frequency of Presenting and Concurrent Patient Conditions	
ROUTINELY SEEN	Spinal subluxation/joint dysfunction
	Headaches
OFTEN SEEN	Osteoarthritis/degenerative joint disease
	Vertebral facet syndrome
	Muscular strain/tear
	Extremity subluxation/joint dysfunction
	Tendinitis/tenosynovitis
	Peripheral neuritis or neuralgia
	High or low blood pressure
	Allergies
	Hyperlordosis of cervical or lumbar spine
	Intervertebral disc syndrome
	Sprain or dislocation of any joint
	Obesity
	Radiculitis or radiculopathy
	Kyphosis of thoracic spine
	Bursitis or synovitis
SOMETIMES SEEN	Scoliosis
	Menstrual disorder
	Asthma, emphysema or COPD
	Osteoporosis/osteomalacia
	Upper respiratory or ear infection
	Pregnancy
	Acne, dermatitis or psoriasis
	Respiratory viral or bacterial infection
	Nutritional disorders
	Articular joint congenital/developmental anomaly
	Carpal or tarsal tunnel syndrome
	Skeletal congenital/developmental anomaly
	TMJ syndrome
	Ear or hearing disorder

TABLE 8.2 ***(Continued on next page)***
Presenting and Concurrent Patient Conditions

Frequency of Presenting and Concurrent Patient Conditions	
SOMETIMES SEEN (CONT.)	Psychological disorders
	Thoracic outlet syndrome
	Eye or vision disorder
	Loss of equilibrium
	Systemic/rheumatoid arthritis or gout
	Diabetes
	Occupational or environmental disorder
	Hiatus or inguinal hernia
	Gastrointestinal bacterial or viral infection
	Ulcer of stomach, intestine or colon
	Eating disorders
	Thyroid or parathyroid disorder
	Angina or myocardial infarction
	Colitis or diverticulitis
	Infection of kidney or urinary tract
	Muscular atrophy
	Hemorrhoids
RARELY SEEN	Peripheral artery or vein disorder
	Integument bacterial or fungal infection
	Herpes simplex or zoster
	Disorder of throat or larynx
	Anemia
	Murmur or rhythm irregularity
	Prostate disorder
	ALS, multiple sclerosis or Parkinson's
	Fracture
	Non-cancerous disorder of breast
	Immunological disorder
	Spinal canal stenosis
	Disorder of nose or sense of smell
	Kidney stones
	Cranial nerve disorder
	Female infertility
	Adrenal disorder
	Pigment disorders
	Appendicitis, cholecystitis or pancreatitis
	Endocrine or metabolic bone disorder

TABLE 8.2 ***(Continued on next page)***
Presenting and Concurrent Patient Conditions

Frequency of Presenting and Concurrent Patient Conditions	
RARELY SEEN (CONT.)	Stroke or cerebrovascular condition
	Vertebrobasilar artery insufficiency
	Male infertility or impotency
	Tumor of breast or reproductive system
	Cardiovascular congenital anomaly
	Skin cancer
	Hereditary disorder
	Muscular dystrophy
	Chickenpox
	Arterial aneurysm
	Aseptic necrosis or epiphysitis
	Tearing or rupture of nerve/plexus
	Joint tumor or neoplasm
	Measles/German measles
	Bone tumor
	Pituitary disorder
	Chronic kidney disease or failure
	Whooping cough
	Mumps
	Atelectasis or pneumothorax
VIRTUALLY NEVER SEEN	Tumor of gastrointestinal tract
	Tumor of lung or respiratory passages
	Bacterial infection of joint
	Thymus or pineal disorder
	Brain or spinal cord tumor
	Herpes II
	Parasitic disorder
	Cancer of the marrow or lymphatic system
	Endocrine tumor
	Male reproductive congenital anomaly
	Polycythemia
	Chlamydia
	Tumor of male reproductive system
	Tumor of the kidney or bladder
	AIDS-related complex
	Tumor of eye, ear, nose or throat
	Muscle tumor
	Venereal warts
	Gonorrhea
	Syphilis

TABLE 8.2
Presenting and Concurrent Patient Conditions

Articular/Joint

Articular/Joint conditions were considered first by respondents (Table 8.3). Spinal subluxations or joint dysfunctions were seen routinely in chiropractors' offices. Articular/Joint conditions such as osteoarthritis, degenerative joint disease, vertebral facet syndrome, and intervertebral disc syndrome were often seen . Most other conditions in the Articular/Joint area were seen often or sometimes. Only four of the conditions listed in this area were rarely seen.

Neurological

Neurological conditions were considered next (Table 8.3). Patients presenting with a headache were seen routinely in chiropractors' offices. Peripheral neuritis or neuralgia was seen often, as was radiculitis or radiculopathy. Other related conditions were seen sometimes, rarely or never.

Skeletal

The next section involved Skeletal conditions (Table 8.4). Osteoporosis/osteomalacia and congenital developmental anomalies were sometimes seen. According to response data, all other skeletal conditions were rarely seen.

Muscular

In the Muscular section, muscular strain/tear was seen often, as was tendinitis/tenosynovitis (Table 8.4). Other muscular conditions were seen sometimes, rarely or never.

Cardiovascular

In the Cardiovascular section, high or low blood pressure was seen often (Table 8.4). All other conditions were sometimes or rarely seen.

Respiratory

In the Respiratory section, asthma, emphysema or COPD, viral or bacterial infection, and occupational or environmental disorders were sometimes seen (Table 8.4). The other two conditions were rarely or never seen.

Integument

In the section addressing Integument conditions, it was noted that acne, dermatitis or psoriasis was sometimes seen (Table 8.4). All other conditions were rarely seen.

Gastrointestinal

In the Gastrointestinal area, hernias, bacterial or viral infections, ulcers, colitis and diverticulitis were sometimes seen (Table 8.5). The other conditions listed were rarely or never seen.

Renal/Urological

In the Renal/Urological area, infection of the kidney or urinary tract was sometimes seen (Table 8.5). Other conditions listed were rarely or never seen.

Male Reproductive

In the Male Reproductive area, concurrent conditions were rarely or never seen in most chiropractic offices (Table 8.5).

Female Reproductive

In the Female Reproductive area, menstrual disorders, and pregnancy were sometimes seen. Other conditions listed were rarely seen (Table 8.5).

Hematological/Lymphatic

In the Hematological/Lymphatic area, anemia, immunological, and hereditary disorders were rarely seen (Table 8.5); other conditions were generally never seen in the typical chiropractor's office.

Endocrine/Metabolic

In the Endocrine/Metabolic area, obesity was often seen in chiropractors' offices; thyroid or parathyroid disorders, and diabetes were sometimes seen (Table 8.6). Other conditions were rarely or never seen.

Childhood Disorders

In the area of Childhood Disorders, upper respiratory or ear infections were sometimes seen (scoliosis and congenital/developmental anomalies are listed with Articular/Joint conditions). All other conditions were rarely or never seen in a chiropractor's office (Table 8.6).

Venereal

In the Venereal area, the conditions listed were typically never seen in a chiropractor's office (Table 8.6).

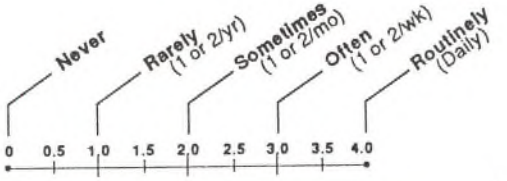
EENT (eye, ear, nose, and throat)

In the EENT (eye, ear, nose, and throat) section, eye or vision disorders were sometimes seen, as were ear or hearing disorders. Disorders of the nose, throat, and larynx were rarely seen. Tumors of the eye, ear, nose, or throat were typically never seen (Table 8.6).

Miscellaneous

In the miscellaneous section, allergies were often seen. Nutritional, psychological, and eating disorders were sometimes seen (Table 8.6). The other area listed, AIDS-related complex, was typically never seen in a chiropractic practice.

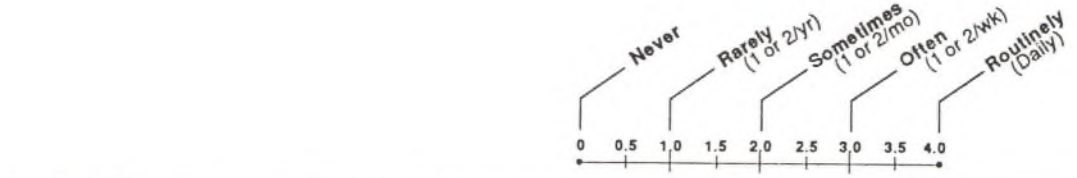
The following tables present the frequency of presenting and concurrent conditions as they were rated on a zero-to-four scale.



Presenting and Concurrent Condition: Articular/Joint	AVG
Spinal subluxation/joint dysfunction	3.96
Extremity subluxation/joint dysfunction	3.20
Sprain or dislocation of any joint	2.60
Vertebral facet syndrome	3.26
Intervertebral disc syndrome	2.68
Thoracic outlet syndrome	1.92
Hyperlordosis of cervical or lumbar spine	2.72
Kyphosis of thoracic spine	2.54
Aseptic necrosis or epiphysitis	0.69
Scoliosis	2.48
Congenital/developmental anomaly	2.04
Osteoarthritis/degenerative joint disease	3.39
Systemic/rheumatoid arthritis or gout	1.86
Bacterial infection of joint	0.47
Bursitis or synovitis	2.53
Carpal or tarsal tunnel syndrome	2.03
TMJ syndrome	2.00
Joint tumor or neoplasm	0.66
Spinal canal stenosis	1.08

Presenting and Concurrent Condition: Neurological	AVG
Headaches	3.76
Peripheral neuritis or neuralgia	3.10
ALS, multiple sclerosis or Parkinson's	1.19
Tearing or rupture of nerve/plexus	0.67
Stroke or cerebrovascular condition	0.89
Vertebrobasilar artery insufficiency	0.86
Cranial nerve disorder	1.04
Radiculitis or radiculopathy	2.54
Loss of equilibrium	1.88
Brain or spinal cord tumor	0.44

TABLE 8.3
Frequency of Articular/Joint, and Neurological Conditions



Presenting and Concurrent Condition: Skeletal	AVG
Fracture	1.17
Osteoporosis/osteomalacia	2.38
Congenital/developmental anomaly	2.01
Endocrine or metabolic bone disorder	0.95
Bone tumor	0.64

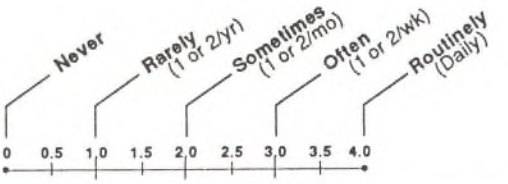
Presenting and Concurrent Condition: Muscular	AVG
Muscular Strain/Tear	3.22
Tendinitis/tenosynovitis	3.14
Muscular dystrophy	0.77
Muscular atrophy	1.50
Muscle tumor	0.25

Presenting and Concurrent Condition: Cardiovascular	AVG
High or low blood pressure	2.95
Angina or myocardial infarction	1.55
Arterial aneurysm	0.70
Peripheral artery or vein disorder	1.44
Murmur or rhythm irregularity	1.25
Congenital anomaly	0.82

Presenting and Concurrent Condition: Respiratory	AVG
Viral or bacterial infection	2.21
Asthma, emphysema or COPD	2.41
Occupational or environmental disorder	1.81
Atelectasis or pneumothorax	0.51
Tumor of lung or respiratory passages	0.48

Presenting and Concurrent Condition: Integument	AVG
Acne, dermatitis or psoriasis	2.23
Bacterial or fungal infection	1.40
Herpes simplex or zoster	1.36
Pigment disorders	0.97
Skin cancer	0.80

TABLE 8.4
Frequency of Skeletal, Muscular, Cardiovascular, Respiratory, and Integument Conditions



Presenting and Concurrent Condition: Gastrointestinal	AVG
Bacterial or viral infection	1.72
Appendicitis, cholecystitis or pancreatitis	0.95
Ulcer of stomach, intestine or colon	1.66
Hiatus or inguinal hernia	1.76
Colitis or diverticulitis	1.51
Hemorrhoids	1.50
Tumor of gastrointestinal tract	0.49

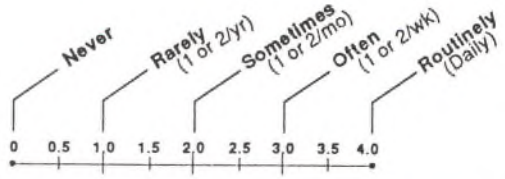
Presenting and Concurrent Condition: Renal/Urological	AVG
Infection of kidney or urinary tract	1.51
Kidney stones	1.05
Chronic kidney disease or failure	0.58
Tumor of the kidney or bladder	0.26

Presenting and Concurrent Condition: Male Reproductive	AVG
Male infertility or impotency	0.86
Prostate disorder	1.25
Congenital anomaly	0.30
Tumor of reproductive system	0.29

Presenting and Concurrent Condition: Female Reproductive	AVG
Female infertility	1.01
Pregnancy	2.37
Menstrual disorder	2.46
Non-cancerous disorder of breast	1.15
Tumor of reproductive system	0.83

Presenting and Concurrent Condition: Hematological/Lymphatic	AVG
Anemia	1.30
Immunological disorder	1.13
Hereditary disorder	0.78
Polycythemia	0.30
Cancer of marrow or lymphatic system	0.38

TABLE 8.5
Frequency of Gastrointestinal, Renal/Urological, Male Reproductive, Female Reproductive, and Hematological/Lymphatic Conditions



Presenting and Concurrent Condition: Endocrine/Metabolic	AVG
Obesity	2.56
Thyroid or parathyroid disorder	1.56
Adrenal disorder	0.98
Pituitary disorder	0.60
Thymus or pineal disorder	0.47
Diabetes	1.84
Endocrine tumor	0.32

Presenting and Concurrent Condition: Childhood Disorders	AVG
Upper respiratory or ear infection	2.38
Measles/German measles	0.64
Mumps	0.51
Chickenpox	0.74
Whooping cough	0.57
Parasitic	0.40

Presenting and Concurrent Condition: Venereal	AVG
Herpes II	0.40
Gonorrhea	0.18
Chlamydia	0.30
Venereal warts	0.20
Syphilis	0.09

Presenting and Concurrent Condition: EENT (eye, ear, nose, throat)	AVG
Eye or vision disorder	1.91
Ear or hearing disorder	1.95
Disorder of nose or sense of smell	1.07
Disorder of throat or larnyx	1.32
Tumor of eye, ear, nose, or throat	0.25

Presenting and Concurrent Condition: Miscellaneous	AVG
Allergies	2.82
Nutritional disorders	2.11
Eating disorders	1.61
Psychological disorders	1.93
AIDS-related complex	0.25

TABLE 8.6
Frequency of Endocrine/Metabolic, Childhood Disorders, Venereal, EENT, and Miscellaneous Conditions

Chapter 9
Practice Patterns

Presented in this chapter are the activities chiropractors performed in their practices. There are 45 activities divided into nine major categories, ranging from case history to case management.

The respondent practitioners were asked to rate the **frequency**, (how often they performed the activity) and the perceived **risk** to patient health and safety if the activity were performed poorly or omitted. The frequency and risk factor ratings for the activities were averaged by individual activity and by general category. From the frequency and risk scales the importance scale was generated by obtaining the product of frequency times risk.

Below are the rating scales for this section of the NBCE job analysis:

Rating Scales
utilized in assessing activities

FREQUENCY	x	RISK	=	IMPORTANCE
0 = Never (does not apply)		0 = No risk	0 =	Not important
1 = Rarely (1-25%)		1 = Little risk	4	
2 = Sometimes (26-50%)		2 = Some risk	8	
3 = Frequently (51-75%)		3 = Significant risk	12	
4 = Routinely (76-100%)		4 = Severe risk	16 =	Extremely important

TABLE 9.1

In addition, the practitioners were asked to indicate the **primary technique** used in their practices, i.e. upper cervical, full spine, or another technique.

Finally, the practitioners were asked to indicate which **adjustive and non-adjustive techniques** they had utilized in their practices during the past two years.

Rating the Activities

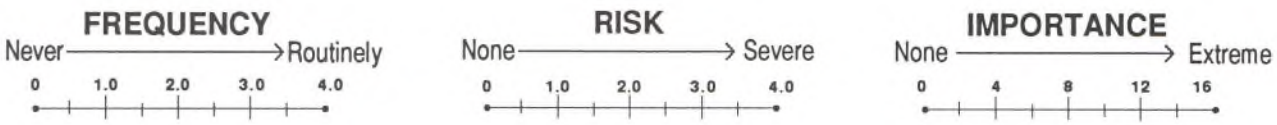
As in other parts of the survey, zero-to-four rating scales were utilized, with the exception of the **Importance** factor, which could range from zero to 16.

The importance factor is commonly obtained in job analyses. It indicates the significance of an activity when taking into account both the frequency with which the activity is performed, and the risk to patients when the activity is performed poorly or omitted.

Case History

The survey results indicated that case histories were performed **routinely** (category average of 3.61), presenting a **significant** risk to patient health and safety if performed poorly or omitted (category average of 2.77).

Chiropractors routinely took an initial case history from a new patient, updated the case history for a patient whose condition had changed or who presented with a new condition, took Subjective, Objective, Assessment, Plan/Procedure (S.O.A.P.) notes on subsequent patient



Activity	Frequency	Risk	Importance
Case History			
Take initial case history	3.99 Routinely	3.29 Significant	13.14
Identify condition from case history	3.52 Routinely	2.93 Significant	10.71
Perform focused case history	3.38 Frequently	2.75 Significant	9.78
Take S.O.A.P. or case progress notes	3.62 Routinely	2.36 Some	8.96
Determine technique/case management	3.45 Frequently	2.44 Some	8.99
Update case history	3.71 Routinely	2.87 Significant	10.93

TABLE 9.2
Case History

visits, and identified the patient's condition based on the case history.

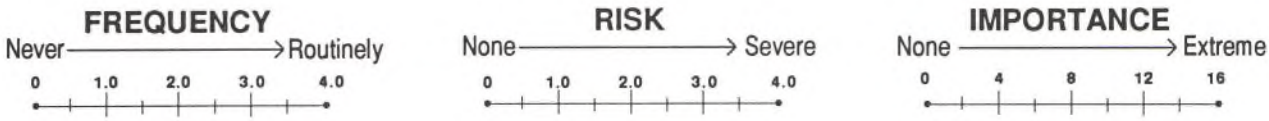
The respondents indicated that the inadequate taking of or omission of an initial case history from a new patient would present a significant risk to patient health and safety and **rated this activity highest in importance of the 45 activities chiropractors performed.**

The other case history activities that rated high in importance were updating the case history from a patient whose condition had changed or who presented with a new condition, and identifying the nature of a patient's condition using the information from a case history (Table 9.2).

Physical Examination

Physical examination activities were performed **routinely** (category average of 3.63), and presented a **significant** risk to patient health and safety if the activities were performed poorly or omitted (category average of 2.86).

Chiropractors routinely performed all the physical examination activities listed in this category. Survey results also indicated that practitioners rated performing a physical examination on a new patient highest in importance in the physical exam area (Table 9.3).



Activity	Frequency	Risk	Importance
Physical Examination			
Perform physical examination	3.77 Routinely	3.18 Significant	12.36
Assess general state of health	3.56 Routinely	2.71 Significant	10.08
Perform regional examination	3.60 Routinely	2.85 Significant	10.75
Update physical examination	3.57 Routinely	2.68 Significant	9.89

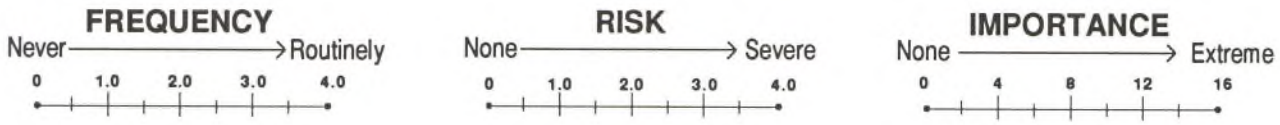
TABLE 9.3
Physical Examination

Neuromusculoskeletal Examination

Neuromusculoskeletal examination activities were performed **frequently** (category average of 3.43), presenting a **significant** risk to patient health and safety if performed poorly or omitted (category average of 2.77).

Chiropractors routinely performed general orthopedic and neurological examinations on new patients, and frequently performed all other NMS exams listed in this category. They associated a significant risk to patient health and safety should any of these activities be performed poorly or omitted.

The highest importance values were associated with performing general orthopedic or neurological examinations on new patients, and with determining the additional laboratory, X-ray, and special studies that were indicated by the NMS exam (Table 9.4).

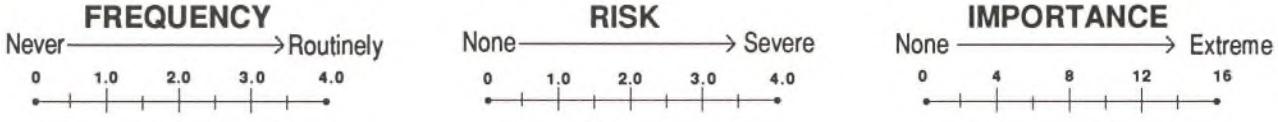


Activity	Frequency	Risk	Importance
Neuromusculoskeletal examination			
Perform orthopedic and/or neurological exam	3.57 Routinely	2.81 Significant	10.55
Perform focused orthopedic and/or neurological exam	3.33 Frequently	2.82 Significant	10.04
Determine patient condition using orthopedic/neurological exam	3.48 Frequently	2.74 Significant	10.07
Determine what additional lab/X-ray/special study, and/or referrals indicated	3.40 Frequently	2.90 Significant	10.51
Update orthopedic/neurological tests	3.35 Frequently	2.60 Significant	9.34

TABLE 9.4
Neuromusculoskeletal Examination

X-ray Examination

X-ray Examination activities were **sometimes** performed (category average of 2.49), presenting **some** risk to patient health and safety if performed poorly or omitted (category average of 2.35).



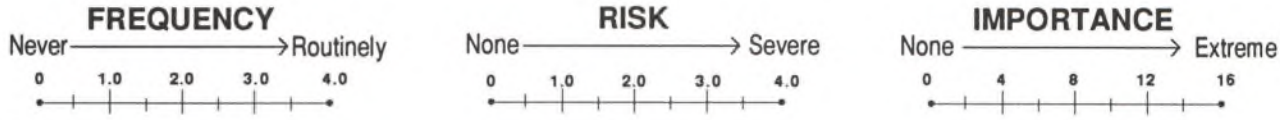
Activity	Frequency	Risk	Importance
X-Ray Examination			
Perform X-ray on new patient	2.69 Frequently	2.60 Significant	7.89
Determine presence of pathology, fracture, or other significant findings	3.27 Frequently	3.22 Significant	11.14
Determine instability/joint dysfunction	1.80 Sometimes	2.00 Some	4.49
Determine presence of subluxation	2.28 Sometimes	1.64 Some	4.97
Update X-ray/perform new X-ray	2.39 Sometimes	2.27 Some	6.23

TABLE 9.5
X-Ray Examination

Practitioners frequently took X-rays on new patients and determined the presence of pathology, fracture, dislocations, or other significant findings using information from an X-ray examination. Determining the presence of pathology, fracture, dislocations or other significant findings was rated highest in importance of the activities chiropractors performed in this category (Table9.5).

Laboratory and Special Studies

Laboratory and special studies examinations were **rarely** performed (category average of 0.84), presenting **some** risk to patient health and safety when performed poorly or omitted (category average of 1.69).



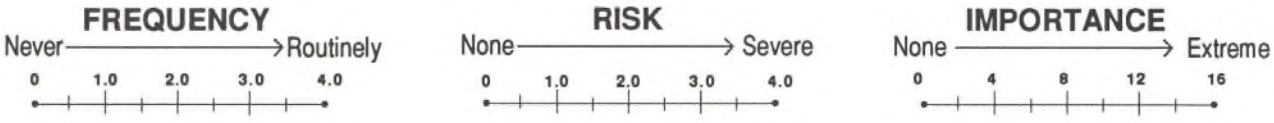
Activity	Frequency	Risk	Importance
Laboratory and Special Studies			
Draw blood, collect urine, or other laboratory procedures	0.16 Virtually Never	1.17 Little	0.31
Order laboratory tests	0.48 Virtually Never	1.34 Little	1.00
Refer patient for MRI, CT, EKG, etc.	1.03 Rarely	1.99 Some	2.52
Confirm diagnosis/health-threatening condition	1.21 Rarely	2.04 Some	3.22
Augment history, examination, or X-ray	1.32 Rarely	1.89 Some	3.27

TABLE 9.6
Laboratory and Special Studies

Practitioners rarely confirmed a diagnosis or ruled out health-threatening conditions using information from laboratory results or specialized studies. The data indicate they perform so rarely the activities of ordering laboratory tests, drawing blood, collecting urine, or other laboratory procedures that these are categorized "virtually never." Overall, this category had the lowest importance values (Table 9.6).

Diagnosis

Diagnosis activities were performed **frequently** (category average of 3.19), presenting a **significant** risk to patient health and safety if performed poorly or omitted (category average of 2.65).



Activity	Frequency	Risk	Importance
Diagnosis			
Relate problems to process	3.12 Frequently	2.61 Significant	8.94
Distinguish between urgent/less urgent	3.37 Frequently	3.21 Significant	11.45
Predict effectiveness of chiropractic	3.44 Frequently	2.14 Some	7.88
Refer patient to other practitioner	2.35 Sometimes	2.61 Significant	6.67
Arrive at diagnosis/impression	3.67 Routinely	2.68 Significant	10.21

TABLE 9.7
Diagnosis

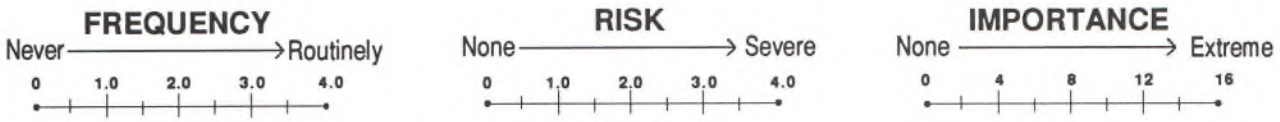
Chiropractors routinely arrived at a diagnosis or clinical impression on the basis of the patient's case history and examination findings. They frequently distinguished between life- or health-threatening conditions and less urgent conditions, and predicted the effectiveness of chiropractic care in treating the patient's condition.

The area rated highest in importance was distinguishing between life- or health-threatening conditions and less urgent conditions (Table 9.7).

Chiropractic Technique

Chiropractic techniques (excluding use of instruments) were **routinely** utilized (overall category average of 3.42 including instruments), presenting **some** risk to patient health and safety if performed poorly or omitted (category average of 2.14).

Practitioners indicated a significant risk to patient health and safety if a specific chiroprac-



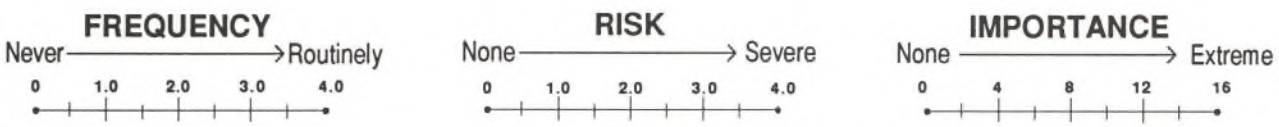
Activity	Frequency	Risk	Importance
Chiropractic Technique			
Perform specific chiropractic examination	3.84 Routinely	2.58 Significant	10.12
Utilize instruments	2.02 Sometimes	1.25 Little	3.57
Determine case management/technique	3.71 Routinely	2.28 Some	8.77
Perform chiropractic adjustive techniques	3.92 Routinely	2.33 Some	9.23
Update chiropractic examination	3.61 Routinely	2.27 Some	8.51

TABLE 9.8
Chiropractic Technique

tic examination of a patient were performed poorly or omitted; this same activity was rated highest in importance of activities listed in this category (Table 9.8).

Supportive Technique

Supportive techniques were performed **frequently** (category average of 2.82), presenting **some** risk to patient health and safety if performed poorly or omitted (category average of 1.67).



Activity	Frequency	Risk	Importance
Supportive Technique			
Evaluate patient condition	3.44 Frequently	2.10 Some	7.56
Determine use of supportive technique	3.32 Frequently	1.55 Some	5.17
Perform procedures other than adjustive	2.60 Frequently	1.57 Some	4.68
Refer patient to other practitioner	2.01 Sometimes	1.52 Some	3.63
Monitor effectiveness of non-adjustive technique	2.74 Frequently	1.62 Some	5.18

TABLE 9.9
Supportive Techniques

Chiropractors frequently evaluated the patient's condition to determine if procedures other than adjustive techniques were indicated. In addition, determining the use of supportive techniques, performing treatment procedures other than adjustive techniques, and monitoring the effectiveness of non-adjustive techniques or therapeutic procedures were also frequently performed.

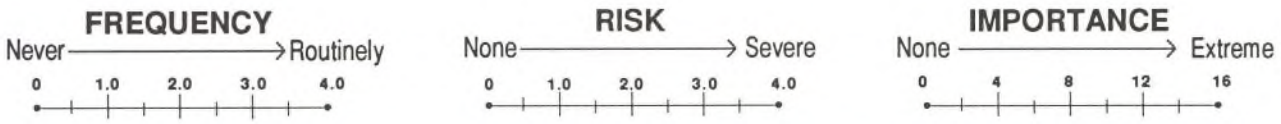
The survey respondents indicated some risk to patient health and safety should any of these supportive techniques be performed poorly or omitted.

The highest importance rating was given to the evaluation of the patient's condition (Table 9.9).

Case Management

Case Management activities were performed **frequently** (category average of 3.35), presenting **some** risk to patient health and safety if performed poorly or omitted (category average of 2.33).

Case management activities routinely performed included maintaining written records of case problems, goals, intervention strategies, and case progress; encouraging the patient to make appropriate changes in habits or lifestyle to prevent reoccurrences of the condition; and modifying or revising case management as the patient's condition improved or failed to improve.



Activity	Frequency	Risk	Importance
Case Management			
Discuss alternatives with patient	2.93 Frequently	2.04 Some	6.33
Recommend/arrange for other services	2.92 Frequently	2.49 Some	7.99
Modify case management	3.57 Routinely	2.54 Significant	9.44
Encourage patient to change habits/lifestyle	3.65 Routinely	2.13 Some	8.03
Maintain written record	3.68 Routinely	2.46 Some	9.26

TABLE 9.10
Case Management

In the activities pertaining to case management, respondents indicated that modifying case management as conditions improved or failed to improve was rated highest in importance (Table 9.10).

Treatment Procedures

Practitioners were asked to indicate the primary technique approach they used in their practices. Results indicated 95.1% utilized **full spine**, while 2.1% used the **upper cervical** approach. **Other** was noted by 2.8% (Table 9.11).

Specific Adjustive Techniques

Results indicated that only the Diversified technique was used by a majority of practitioners (Table 9.11). All other techniques were used by 44% or fewer of the respondents. Results also indicated that the responding practitioners used an average of 4.7 specific adjustive techniques in their practices.

Non-Adjustive Techniques

As indicated in Table 9.11, approximately two-thirds or more of the practitioners utilized 8 of the supportive techniques listed. This begins with Corrective Exercises (96.5%) and ends with Acupressure (66.3%). Data indicated that the average number of supportive techniques utilized by practitioners was 10.3.

Chiropractic Treatment Procedures

Primary Approach	%
Full Spine	95.1
Upper Cervical	2.1
Other	2.8

Adjustive Techniques	%
Diversified	87.3
SOT	44.2
Activator	43.6
Meric	37.7
Gonstead	35.0
NIMMO/Tonus receptor	32.4
Applied kinesiology	31.0
Thompson	30.0
Logan	25.9
Cox/Flexion-Distraction	22.4
Palmer upper cervical/HIO	22.3
Cranial	22.2
Other	15.5
Pierce-Stillwagon	13.6
Grostic	4.3
Life upper cervical	2.9
Toftness	2.2
Barge	1.6
Pettibon	1.3
NUCCA	1.0

Non-Adjustive Techniques	%
Corrective/Therap. Exercises	96.5
Ice Pack/Cryotherapy	87.9
Bracing	80.9
Orthotics/Lifts	77.8
Nutritional Counseling	76.2
Massage Therapy	70.1
Bedrest	67.0
Acupressure/Meridian Therapy	66.3
Hot Pack/Moist Heat	59.1
Traction	58.0
Casting/Taping, Strapping	53.4
Electrical Stimulation	44.9
Vibratory Therapy	40.4
Ultrasound	37.6
Interferential Current	27.4
Homeopathic Remedies	24.7
Diathermy	15.0
Direct Current, etc.	14.0
Other	12.4
Acupuncture	12.2
Infrared Baker, etc.	12.1
Whirlpool/Hydrotherapy	8.0
Biofeedback	5.7
Paraffin Bath	1.9
Ultraviolet Therapy	1.4

TABLE 9.11
Chiropractic Treatment Procedures

Chapter 10
Survey Data by Individual Province

The first nine chapters of this report contain weighted data for all of Canada. Within the text of the first nine chapters, it was important that *weighting* (a process described in Chapter 5) be utilized in order to allow sample sizes of nonequivalent proportions to be combined to accurately represent the national population. (Determining the desired sample size for each province was based on the standard error equation which appears in Chapter 5.)

Chapter 10 presents data on a province-by-province basis, which was summarized *without* weighting. The purpose of publishing the unweighted provincial data is to support and fully document the weighted and summarized data presented in the previous chapters, and to provide provincial agencies, organizations or individuals with comparative data which may be utilized to meet various needs. In some instances, data are presented in percentages, which allow direct comparison that would not be afforded by raw numbers.

In reviewing the tables in this chapter, the reader is reminded that the Northwest and Yukon Territories were not included in the job analysis study due to insufficient numbers of practitioners. Additionally, it should be noted that response data obtained from the provinces of New Brunswick, Newfoundland, Nova Scotia, and Prince Edward Island were combined under the heading *Maritime* to increase statistical accuracy.

The tables in this chapter provide data pertaining to each question that was asked of survey participants. Data are presented in the order in which survey questions were posed. The survey form, which appears as an Appendix of this publication, may be useful in tracking the data contained

	PROVINCIAL DATA						
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan
Total number of **licensed** practitioners*	381	485	132	67	1299	773	124
Estimated number of **licensed full-time** practitioners**	359	419	122	49	1029	634	111
Number of **surveys mailed**	156	160	132	67	180	166	121
Number of **full-time licensed survey respondents**	116	107	73	31	99	87	74

* From provincial lists
** From survey responses

TABLE 10.1
Recap of Survey Information by Province

in this and previous chapters. Table 10.1 presents information concerning numbers of survey respondents by province, and also provides additional background information to assist the reader in interpreting the survey data presented in tables throughout the remainder of Chapter 10. The data presented in Table 10.1 is reprinted for easy reference in a fold-out on Page 109.

PRACTITIONER AND PATIENT DEMOGRAPHICS

Pages 1-3 of the survey requested personal, educational and professional background information on the responding practitioners, as well as personal information relating to the types of patients seen by the respondents. The tables relating to this portion of the survey present the percent of total responses.

Type of Demographic Data	PRACTITIONER DEMOGRAPHICS (By Percent)							NATIONAL AVERAGES
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	Unwtd* / Wtd**
SEX								
Male	87.1	90.7	93.2	87.1	86.7	82.8	93.2	88.6 / 87.0
Female	12.9	9.3	6.8	12.9	13.3	17.2	6.8	11.4 / 13.0
PLACE OF BIRTH								
Canada	88.6	85.7	87.5	83.9	86.3	90.7	98.6	88.9 / 88.1
U.S.A.	3.5	4.8	4.2	12.9	5.3	3.5	0.0	4.2 / 4.4
Britain	0.9	3.8	1.4	3.2	3.2	1.2	1.4	2.1 / 2.3
France	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.2 / 0.3
Belgium	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.3 / 0.5
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
Australia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
New Zealand	0.9	0.0	1.4	0.0	0.0	0.0	0.0	0.3 / 0.2
Other	6.1	5.7	5.6	0.0	5.3	1.2	0.0	4.0 / 4.2
NON-CHIROPRACTIC EDUCATION								
High School Diploma	33.6	39.2	34.7	35.5	23.5	22.5	42.3	32.6 / 28.5
Associate Degree	8.2	6.9	5.6	3.2	4.1	6.3	4.2	5.9 / 5.6
Baccalaureate Degree	41.8	35.3	38.9	35.5	51.0	50.1	36.6	41.8 / 45.7
Master's Degree	2.7	3.9	2.8	6.5	6.1	1.3	2.8	3.5 /4.0
Doctoral Degree	0.9	2.9	0.0	0.0	0.0	0.0	1.4	0.9 / 0.6
Other	12.7	11.8	18.1	19.4	15.3	20.0	12.7	15.1 / 15.6
POST-GRADUATE SPECIALTY								
None/does not apply	87.0	86.8	86.1	87.1	87.9	90.8	89.2	87.8 / 88.2
American Chiropractic Board of Sports Physicians	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2 / 0.1
American Board of Chiropractic Orthopedists	2.6	2.8	9.7	3.2	1.0	3.4	0.0	3.1 / 2.4
American Chiropractic Academy of Neurology	0.0	0.0	1.4	0.0	0.0	0.0	1.4	0.3 / 0.1
American Chiropractic Board of Radiology	1.7	4.7	1.4	3.2	2.0	0.0	0.0	1.9 / 1.8
Chiropractic Rehabilitation Association	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.2 / 0.3
American Chiropractic Board of Nutrition	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2 / 0.1
American Board of Chiropractic Internists	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
ICA College of Chiropractic Imaging	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.2 / 0.3
ICA College of Thermography	0.0	0.0	0.0	0.0	1.0	1.1	0.0	0.3 / 0.7
ICA Council on Applied Chiropractic Sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
Canadian Specialties (including College of Chiropractic Sciences, Chiropractic College of Radiologists, College of Chiropractic Sports Sciences)	0.9	1.9	2.8	0.0	5.1	1.1	4.1	2.4 / 2.9
Other	7.8	4.7	2.8	9.7	3.0	2.3	6.8	5.0 / 4.0

* **Unweighted (Unwtd) data:** Responses indicated "Unwtd" represent the arithmetic average based upon all responses.

** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.

Type of Demographic Data	PRACTITIONER DEMOGRAPHICS (By Percent)							NATIONAL AVERAGES
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	Unwtd */ Wtd**
INSTITUTION GRANTING DEGREE								
Anglo-European	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.2 / 0.1
Canadian Memorial	49.6	80.4	69.9	73.3	96.0	48.8	94.6	72.5 / 75.1
Cleveland-KC	0.0	0.0	1.4	0.0	0.0	3.6	0.0	0.7 / 0.9
Cleveland-LA	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.5 / 0.3
Institut Francais	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
Life	0.9	0.9	13.7	0.0	1.0	2.4	0.0	2.6 / 1.8
Life-West	1.7	0.0	6.8	0.0	0.0	0.0	0.0	1.2 / 0.5
Logan	4.3	0.9	0.0	0.0	0.0	3.6	0.0	1.5 / 1.5
Los Angeles	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.2 / 0.1
National	0.9	0.0	0.0	3.3	1.0	1.2	0.0	0.7 / 0.8
New York	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
Northwestern	0.0	0.9	2.7	0.0	1.0	0.0	1.4	0.9 / 0.7
Palmer	30.4	8.4	5.5	20.0	0.0	36.9	2.7	14.9 / 14.4
Palmer-West	4.3	0.0	0.0	0.0	0.0	2.4	0.0	1.2 / 1.1
Parker	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.3 / 0.2
Pennsylvania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
Phillip Institute	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
Sherman	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
Southern California	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
Sydney	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 / 0.0
Texas	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.2 / 0.1
Western States	3.5	4.7	0.0	3.3	0.0	0.0	1.4	1.9 / 1.3
Other	0.0	0.9	0.0	0.0	1.0	1.2	0.0	0.5 / 0.8

Work Environment	PRACTITIONER DEMOGRAPHICS (By Percent)							NATIONAL AVERAGES
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	Unwtd* / Wtd**
Which best describes your position in the office where you work?								
Only doctor in office	63.8	59.8	61.6	74.2	66.7	59.3	35.1	59.6 / 62.2
One of two or more doctors in office	35.3	38.3	37.0	25.8	33.3	40.7	62.2	39.4 / 37.3
Junior associate or examining doctor	0.9	0.9	0.0	0.0	0.0	0.0	1.4	0.5 / 0.3
Other	0.0	0.9	1.4	0.0	0.0	0.0	1.4	0.5 / 0.3
Do you practice in more than one office location?								
Yes	14.7	15.0	20.5	22.6	18.2	17.2	21.6	17.7 /17.3
No	85.3	85.0	79.5	77.4	81.8	82.8	78.4	82.3 /82.7
Do you delegate patient care to a chiropractic assistant?								
Yes	45.7	14.0	35.6	35.5	38.4	39.1	16.2	32.2 / 34.7
No	54.3	86.0	64.4	64.5	61.6	60.9	83.8	67.8 / 65.3
Do you deliver chiropractic care outside an office setting?								
Yes	83.6	87.9	83.6	71.0	92.9	72.4	71.6	82.1 / 84.4
No	16.4	12.1	16.4	29.0	7.1	27.6	28.4	17.9 / 15.6
Do you have staff privileges at a hospital?								
Yes	1.7	0.9	0.0	0.0	3.0	0.0	21.6	3.7 / 2.4
No	98.3	99.1	100.0	100.0	97.0	100.0	78.4	96.3 / 97.6
Have you received patient referrals from medical practitioners in the past two years?								
Yes	89.7	97.2	90.4	96.8	94.9	93.1	100.0	94.2 / 94.2
No	10.3	2.8	9.6	3.2	5.1	6.9	0.0	5.8 / 5.8

* **Unweighted (Unwtd) data:** Responses indicated "Unwtd" represent the arithmetic average based upon all responses.

** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.

PRACTITIONER DEMOGRAPHICS (By Percent)

Practitioner Experience and Orientation	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	NATIONAL AVERAGES Unwtd / Wtd
How long have you been practicing in the province in which you are currently located?								
Less than 2 years	12.1	10.3	9.6	6.5	10.1	11.6	14.9	11.1 / 10.8
2-4 years	10.3	15.0	16.4	9.7	17.2	10.5	13.5	13.5 / 14.0
5-15 years	46.6	47.7	45.2	48.4	42.4	39.5	31.1	43.0 / 42.9
more than 15 years	31.0	27.1	28.8	35.5	30.3	38.4	40.5	32.4 / 32.3
How long have you been in practice altogether, including your current province and other provinces or countries?								
Less than 2 years	9.6	6.6	9.7	6.5	10.1	10.5	12.2	9.4 / 9.6
2-4 years	9.6	14.2	16.7	9.7	13.1	7.0	12.2	11.8 / 11.4
5-15 years	44.3	50.0	44.4	48.4	46.5	43.0	32.4	44.3 / 45.3
More than 15 years	36.5	29.2	29.2	35.5	30.3	39.5	43.2	34.5 / 33.7
What kind of clinical orientation did you receive in your first field practice setting?								
No formal orientation	54.3	54.3	47.9	70.0	50.0	67.1	44.4	54.2 / 55.2
A preceptorship/field internship	2.6	6.7	9.6	3.3	8.3	7.1	6.9	6.4 / 6.9
An associateship	38.8	35.2	37.0	20.0	34.4	23.5	44.4	34.7 / 32.9
A state-mandated training program	0.9	1.0	0.0	0.0	0.0	1.2	0.0	0.5 / 0.5
Other	3.4	2.9	5.5	6.7	7.3	1.2	4.2	4.2 / 4.4
Approximately what percentage of your time is spent on each of the following functions during a typical week?								
Business Management	13.5	11.8	12.2	10.9	12.1	11.0	10.9	11.9 / 11.9
Direct Patient Care	66.6	63.2	68.2	63.2	65.2	63.9	66.8	65.4 / 64.9
Patient Education	16.4	19.4	15.2	21.4	18.5	19.6	18.9	18.2 / 18.6
Research	3.6	5.6	4.4	4.5	4.2	5.5	3.4	4.5 / 4.6

PATIENT DEMOGRAPHICS (By Percent)

Types of Patients	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	NATIONAL AVERAGES Unwtd / Wtd
SEX								
Male	40.7	40.4	42.3	47.1	41.0	38.9	43.5	41.3 / 40.6
Female	59.3	59.6	57.8	52.9	59.1	61.2	56.5	58.7 / 59.4
AGE								
17 or younger	11.6	10.3	11.0	8.5	11.7	11.3	10.7	11.0 / 11.2
18 to 30	21.0	20.8	22.3	20.5	21.0	19.4	19.6	20.7 / 20.6
30 to 50	36.6	35.4	37.0	34.1	37.9	38.8	33.0	36.4 / 37.2
51 to 64	19.7	19.8	18.2	24.8	18.1	20.2	22.7	20.0 / 19.4
65 or older	11.1	13.8	11.6	12.1	11.2	10.4	14.1	12.0 / 11.6
PLACE OF BIRTH								
Canada	68.0	61.6	70.4	71.4	68.4	81.0	79.3	70.7 / 70.4
U.S.A.	7.7	8.1	7.3	9.8	7.7	5.3	6.3	7.3 / 7.2
Britain	6.5	6.9	5.9	6.9	7.1	2.2	5.0	5.8 / 5.8
France	2.4	3.1	2.9	2.9	2.9	4.2	1.5	2.8 / 3.1
Belgium	1.1	1.9	1.7	1.1	1.5	2.0	0.7	1.5 / 1.6
Switzerland	2.2	3.0	1.8	2.2	2.0	1.4	0.7	2.0 / 2.0
Australia	4.3	4.8	2.4	1.5	2.1	0.7	2.1	2.8 / 2.6
New Zealand	3.1	4.6	1.5	1.5	1.1	0.7	0.7	2.1 / 1.9
Other	4.8	5.9	6.1	2.9	7.2	2.6	3.8	5.0 / 5.4
OCCUPATION								
Executive/Professional	11.1	10.7	10.0	12.4	12.4	11.6	9.7	11.1 / 11.5
White collar/Secretarial	16.7	17.2	15.0	15.2	18.3	18.8	14.5	16.8 / 17.7
Professional/Amateur athlete	7.6	8.4	7.7	7.7	9.3	7.8	7.0	8.0 / 8.3
Tradesman/Skilled labor	18.9	18.7	18.1	18.6	16.8	16.8	19.0	18.1 / 17.6
Unskilled labor	11.7	10.9	15.3	15.4	11.1	13.9	14.4	12.8 / 12.3
Homemaker	15.3	15.1	14.6	13.3	12.7	13.0	15.0	14.3 / 13.7
Student	9.1	8.2	9.0	7.7	9.3	7.7	7.6	8.5 / 8.6
Retired or other	9.7	10.9	10.3	9.6	10.1	10.3	12.8	10.5 / 10.3

TYPES OF CONDITIONS

Pages 5-8 of the survey contained a list of patient conditions that were divided into 17 categories. Participants were asked to consider and indicate how often they had seen patients with the following presenting or concurrent conditions in the previous 2 years. The 0-to-4 rating scale (shown below) was used throughout this section of the survey.

0 = NEVER
1 = RARELY (1-2 per year)
2 = SOMETIMES (1-2 per month)
3 = OFTEN (1-2 per week)
4 = ROUTINELY (Daily)

Type of Condition	FREQUENCY OF CONDITIONS							NATIONAL AVERAGES
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	Unwtd */ Wtd**
ARTICULAR/JOINT								
spinal subluxation/joint dysfunction	3.96	3.98	3.99	3.97	3.98	3.93	3.91	3.96 / 3.96
extremity subluxation/joint dysfunction	3.37	3.31	3.52	2.74	3.23	2.93	3.32	3.25 / 3.20
sprain or dislocation of any joint	2.67	2.82	2.99	2.26	2.73	2.10	3.04	2.69 / 2.60
vertebral facet syndrome	3.28	3.42	3.21	3.23	3.31	3.00	3.54	3.29 / 3.26
intervertebral disc syndrome	2.81	2.58	2.77	2.94	2.60	2.76	2.68	2.71 / 2.68
thoracic outlet syndrome	2.08	2.09	1.85	2.10	1.74	2.02	1.97	1.97 / 1.92
hyperlordosis of cervical or lumbar	2.79	2.92	2.55	2.55	2.64	2.72	2.76	2.73 / 2.72
spine	2.66	2.84	2.66	2.35	2.47	2.41	2.38	2.57 / 2.54
kyphosis of thoracic spine	0.72	0.66	0.70	0.71	0.65	0.76	0.72	0.70 / 0.69
aseptic necrosis or epiphysitis	2.50	2.57	2.36	2.35	2.38	2.67	2.07	2.44 / 2.48
scoliosis	2.21	2.22	2.18	1.97	2.02	1.87	1.92	2.08 / 2.04
congenital/developmental anomaly	3.45	3.60	3.56	3.35	3.52	2.95	3.50	3.43 / 3.39
osteoarthritis/degenerative joint	1.92	2.11	2.05	2.00	1.74	1.78	2.11	1.95 / 1.86
disease	0.53	0.50	0.55	0.58	0.36	0.56	0.61	0.52 / 0.47
systemic/rheumatoid arthritis or gout	2.40	2.56	2.70	2.48	2.49	2.61	2.47	2.53 / 2.53
bacterial infection of joint	2.08	2.24	2.22	1.87	1.95	1.93	2.32	2.10 / 2.03
bursitis or synovitis	2.34	2.30	2.21	1.71	1.90	1.69	2.31	2.11 / 2.00
carpal or tarsal tunnel syndrome	0.61	0.71	0.63	0.74	0.65	0.67	0.81	0.68 / 0.66
TMJ syndrome	1.07	1.21	1.23	1.10	1.04	0.95	1.49	1.15 / 1.08
NEUROLOGICAL								
headaches	3.95	3.92	3.92	3.74	3.81	3.43	3.86	3.82 / 3.76
peripheral neuritis or neuralgia	3.29	3.31	3.37	2.71	3.06	2.90	3.22	3.17 / 3.10
ALS, multiple sclerosis or Parkinson's	1.34	1.39	1.56	1.29	1.11	0.98	1.46	1.30 / 1.19
tearing or rupture of nerve/plexus	0.73	0.66	0.67	0.74	0.69	0.61	0.59	0.67 / 0.67
stroke or cerebrovascular condition	0.98	1.19	1.16	0.68	0.79	0.70	1.22	0.98 / 0.89
vertebrobasilar artery insufficiency	0.95	0.96	0.82	0.74	0.82	0.80	0.95	0.88 / 0.86
cranial nerve disorder	1.01	1.15	0.97	0.94	0.95	1.14	1.03	1.04 / 1.04
radiculitis or radiculopathy	2.57	2.55	2.82	2.45	2.52	2.49	2.64	2.58 / 2.54
loss of equilibrium	2.08	2.00	1.97	1.61	1.73	1.97	1.85	1.92 / 1.88
brain or spinal cord tumor	0.42	0.58	0.60	0.39	0.38	0.39	0.62	0.49 / 0.44
SKELETAL								
fracture	1.27	1.15	1.36	0.68	1.15	1.14	1.41	1.20 / 1.17
osteoporosis/osteomalacia	2.41	2.54	2.64	1.71	2.35	2.26	2.61	2.42 / 2.38
congenital/developmental anomaly	2.17	2.17	2.22	1.94	1.98	1.83	2.00	2.06 / 2.01
endocrine or metabolic bone disorder	0.97	1.02	1.11	0.84	0.83	1.07	0.97	0.98 / 0.95
bone tumor	0.60	0.72	0.67	0.55	0.58	0.68	0.74	0.65 / 0.64

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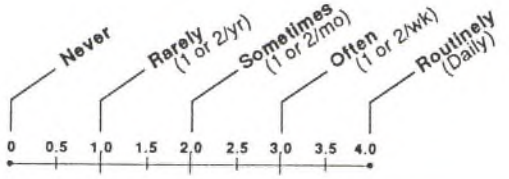

Type of Condition	FREQUENCY OF CONDITIONS							NATIONAL AVERAGES
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	Unwtd* / Wtd**
MUSCULAR								
muscular strain/tear	3.25	3.42	3.47	3.32	3.30	2.84	3.42	3.28 / 3.22
tendinitis/tenosynovitis	2.97	3.23	3.33	2.90	3.21	3.01	3.22	3.14 / 3.14
muscular dystrophy	0.83	0.84	0.85	0.77	0.60	0.94	0.80	0.80 / 0.77
muscular atrophy	1.62	1.59	1.56	1.26	1.44	1.48	1.53	1.53 / 1.50
muscle tumor	0.32	0.28	0.25	0.19	0.22	0.24	0.24	0.26 / 0.25
CARDIOVASCULAR								
high or low blood pressure	3.11	3.17	3.11	2.84	2.90	2.72	3.18	3.02 / 2.95
angina or myocardial infarction	1.54	1.71	1.88	1.45	1.55	1.38	1.68	1.60 / 1.55
arterial aneurysm	0.77	0.81	0.85	0.58	0.64	0.66	0.81	0.74 / 0.70
peripheral artery or vein disorder	1.51	1.57	1.62	1.29	1.31	1.51	1.42	1.48 / 1.44
murmur or rhythm irregularity	1.28	1.31	1.42	1.06	1.24	1.18	1.36	1.28 / 1.25
congenital anomaly	0.91	0.86	0.81	0.55	0.79	0.82	0.88	0.83 / 0.82
RESPIRATORY								
viral or bacterial infection	2.46	2.33	2.36	1.87	2.15	2.08	2.15	2.24 / 2.21
asthma, emphysema or COPD	2.54	2.37	2.66	1.94	2.36	2.44	2.31	2.42 / 2.41
occupational or environmental disorder	1.78	1.78	1.88	1.39	1.86	1.85	1.51	1.76 / 1.81
atelectasis or pneumothorax	0.51	0.46	0.55	0.26	0.43	0.68	0.43	0.49 / 0.51
tumor of lung or respiratory passages	0.45	0.57	0.60	0.35	0.43	0.48	0.54	0.50 / 0.48
INTEGUMENT								
acne, dermatitis or psoriasis	2.45	2.69	2.48	2.16	2.12	1.98	2.07	2.31 / 2.23
bacterial or fungal infection	1.52	1.70	1.74	1.10	1.32	1.26	1.26	1.45 / 1.40
herpes simplex or zoster	1.48	1.61	1.53	1.13	1.32	1.20	1.35	1.41 / 1.36
pigment disorders	1.01	1.29	1.22	1.03	0.89	0.84	0.92	1.03 / 0.97
skin cancer	0.88	1.02	1.04	0.68	0.79	0.59	0.91	0.86 / 0.80
GASTROINTESTINAL								
bacterial or viral infection	1.83	1.92	1.93	1.35	1.56	1.78	1.59	1.75 / 1.72
appendicitis, cholecystitis or pancreatitis	1.13	0.86	1.15	0.71	0.87	1.05	0.92	0.98 / 0.95
ulcer of stomach, intestine or colon	1.89	1.77	1.90	1.42	1.46	1.75	1.63	1.72 / 1.66
hiatus or inguinal hernia	1.96	2.00	1.85	1.77	1.76	1.46	1.77	1.81 / 1.76
colitis or diverticulitis	1.55	1.67	1.68	1.35	1.45	1.47	1.51	1.54 / 1.51
hemorrhoids	1.58	1.49	1.68	1.45	1.48	1.49	1.45	1.52 / 1.50
tumor of gastrointestinal tract	0.43	0.58	0.56	0.26	0.43	0.55	0.49	0.49 / 0.49
RENAL/UROLOGICAL								
infection of kidney or urinary tract	1.71	1.45	1.77	1.45	1.44	1.49	1.59	1.56 / 1.51
kidney stones	1.12	1.07	1.23	1.10	1.00	1.07	1.00	1.08 / 1.05
chronic kidney disease or failure	0.65	0.65	0.75	0.39	0.46	0.67	0.59	0.61 / 0.58
tumor of the kidney or bladder	0.24	0.33	0.36	0.16	0.22	0.23	0.38	0.28 / 0.26
MALE REPRODUCTIVE								
male infertility or impotency	1.00	0.80	0.92	0.55	0.86	0.86	0.73	0.85 / 0.86
prostate disorder	1.38	1.35	1.66	1.10	1.13	1.17	1.51	1.34 / 1.25
congenital anomaly	0.31	0.32	0.36	0.29	0.22	0.39	0.21	0.30 / 0.30
tumor of reproductive system	0.32	0.43	0.32	0.23	0.27	0.24	0.29	0.31 / 0.29

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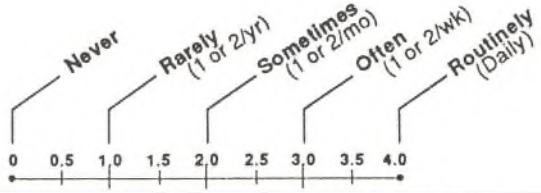

Type of Condition	FREQUENCY OF CONDITIONS							NATIONAL AVERAGES
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	Unwtd* / Wtd**
FEMALE REPRODUCTIVE OR BREAST								
female infertility	1.12	0.91	1.10	0.61	1.01	1.07	0.73	0.98 / 1.01
pregnancy	2.72	2.49	2.71	1.77	2.23	2.28	2.48	2.45 / 2.37
menstrual disorder	2.65	2.43	2.63	2.06	2.38	2.55	2.18	2.46 / 2.46
non-cancerous disorder of breast	1.19	1.18	1.34	0.97	1.08	1.24	0.97	1.16 / 1.15
tumor of breast or reproductive system	0.88	0.95	0.85	0.71	0.79	0.78	0.82	0.84 / 0.83
HEMATOLOGICAL/LYMPHATIC								
anemia	1.37	1.30	1.26	0.81	1.21	1.48	1.04	1.26 / 1.30
immunological disorder	1.27	1.31	1.14	0.68	0.98	1.24	0.86	1.13 / 1.13
hereditary disorder	0.81	0.89	0.84	0.55	0.70	0.85	0.74	0.79 / 0.78
polycythemia	0.30	0.30	0.36	0.19	0.26	0.38	0.34	0.31 / 0.30
cancer of marrow or lymphatic system	0.41	0.45	0.53	0.39	0.33	0.32	0.60	0.43 / 0.38
ENDOCRINE/METABOLIC								
obesity	2.89	2.89	2.97	2.58	2.48	2.14	3.00	2.72 / 2.56
thyroid or parathyroid disorder	1.88	1.57	1.89	1.48	1.35	1.62	1.62	1.64 / 1.56
adrenal disorder	1.22	0.94	1.10	0.77	0.80	1.18	0.72	0.99 / 0.98
pituitary disorder	0.67	0.60	0.68	0.48	0.49	0.74	0.54	0.61 / 0.60
thymus or pineal disorder	0.59	0.44	0.41	0.42	0.32	0.71	0.34	0.47 / 0.47
diabetes	2.02	2.09	2.34	1.81	1.69	1.69	2.08	1.96 / 1.84
endocrine tumor	0.31	0.36	0.42	0.35	0.26	0.33	0.39	0.34 / 0.32
CHILDHOOD DISORDERS								
upper respiratory or ear infection	2.35	2.22	2.53	1.58	2.22	2.87	1.96	2.32 / 2.38
measles/german measles	0.72	0.58	0.82	0.26	0.53	0.84	0.57	0.65 / 0.64
mumps	0.64	0.50	0.59	0.29	0.35	0.72	0.43	0.53 / 0.51
chickenpox	0.74	0.72	0.96	0.42	0.76	0.74	0.55	0.73 / 0.74
whooping cough	0.58	0.47	0.58	0.32	0.52	0.78	0.30	0.53 / 0.57
parasitic	0.46	0.43	0.44	0.39	0.31	0.49	0.23	0.40 / 0.40
VENEREAL								
herpes II	0.33	0.61	0.38	0.32	0.41	0.32	0.14	0.38 / 0.40
gonorrhea	0.21	0.21	0.25	0.23	0.15	0.17	0.09	0.18 / 0.18
chlamydia	0.28	0.35	0.26	0.26	0.27	0.34	0.19	0.28 / 0.30
venereal warts	0.19	0.25	0.21	0.16	0.20	0.21	0.11	0.20 / 0.20
syphilis	0.11	0.12	0.08	0.06	0.07	0.10	0.05	0.09 / 0.09
EENT								
eye or vision disorder	2.17	2.35	2.36	1.42	1.78	1.62	1.97	2.01 / 1.91
ear or hearing disorder	2.13	2.27	2.26	1.61	1.78	1.89	1.85	2.01 / 1.95
disorder of nose or sense of smell	1.14	1.15	1.19	0.87	0.97	1.18	0.77	1.06 / 1.07
disorder of throat or larynx	1.31	1.45	1.47	1.06	1.09	1.66	0.97	1.31 / 1.32
tumor of eye, ear, nose or throat	0.24	0.38	0.38	0.16	0.20	0.22	0.35	0.28 / 0.25
MISCELLANEOUS								
allergies	3.02	3.03	3.22	2.55	2.75	2.63	2.81	2.89 / 2.82
nutritional disorders	2.49	2.21	2.41	2.06	2.05	1.90	1.88	2.17 / 2.11
eating disorders	1.78	1.63	1.81	1.35	1.62	1.54	1.34	1.61 / 1.61
psychological disorders	2.01	2.07	2.22	1.61	1.87	1.85	1.93	1.97 / 1.93
AIDS-related complex	0.18	0.36	0.27	0.19	0.27	0.20	0.15	0.24 / 0.25

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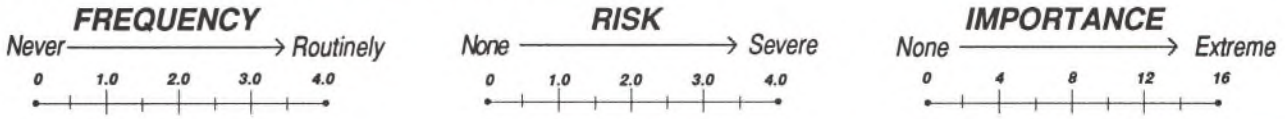
TYPES OF ACTIVITIES PERFORMED

Pages 10-13 of the survey asked participants to indicate how frequently they performed each of the 45 activities listed (divided into 9 major categories), and their perceived risk to patient safety if the activity was performed poorly or omitted. A 0-to-4 rating scale was used for both frequency and risk. The importance of an activity was obtained by multiplying the first two factors and averaging the result on a 0-to-16 scale.



CASE HISTORY

1. Take an initial case history from a new patient.

PROVINCE	CASE HISTORY Frequency	CASE HISTORY Risk Factor	CASE HISTORY Importance	Number Reporting
Alberta	3.98	3.14	12.52	116
British Columbia	4.00	3.31	13.23	107
Manitoba	3.99	3.26	13.00	73
Maritime	4.00	3.52	14.06	31
Ontario	4.00	3.40	13.62	99
Quebec	3.95	3.20	12.65	86
Saskatchewan	3.97	3.20	12.76	74
NATIONAL AVERAGES	3.98	3.27	13.03	UNWEIGHTED*
	3.99	3.29	13.14	WEIGHTED**

CASE HISTORY

2. Identify nature of a patient's condition

PROVINCE	CASE HISTORY Frequency	CASE HISTORY Risk Factor	CASE HISTORY Importance	Number Reporting
Alberta	3.53	2.94	10.72	116
British Columbia	3.64	2.95	10.93	107
Manitoba	3.62	2.77	10.34	73
Maritime	3.26	2.90	9.90	31
Ontario	3.47	3.00	10.93	99
Quebec	3.51	2.83	10.41	86
Saskatchewan	3.46	2.89	10.28	74
NATIONAL AVERAGES	3.52	2.91	10.60	UNWEIGHTED*
	3.52	2.93	10.71	WEIGHTED**

CASE HISTORY

3. Perform a focused case history.

PROVINCE	CASE HISTORY Frequency	CASE HISTORY Risk Factor	CASE HISTORY Importance	Number Reporting
Alberta	3.42	2.68	9.63	116
British Columbia	3.31	2.82	9.61	107
Manitoba	3.30	2.63	9.36	73
Maritime	3.16	2.61	8.94	31
Ontario	3.45	2.84	10.32	99
Quebec	3.34	2.62	9.31	86
Saskatchewan	3.35	2.72	9.41	74
NATIONAL AVERAGES	3.36	2.72	9.60	UNWEIGHTED*
	3.38	2.75	9.78	WEIGHTED**

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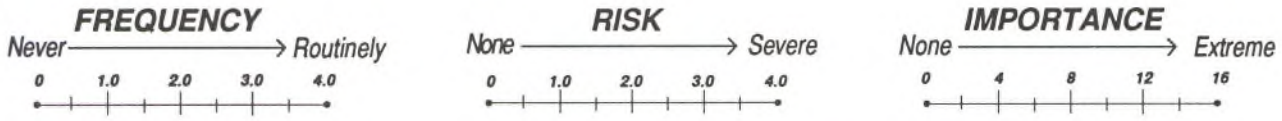

CASE HISTORY	PROVINCE	CASE HISTORY Frequency	CASE HISTORY Risk Factor	CASE HISTORY Importance	Number Reporting
CASE HISTORY 4. Take S.O.A.P. notes or case progress notes	Alberta	3.72	2.40	9.11	116
	British Columbia	3.71	2.58	9.69	107
	Manitoba	3.53	2.22	8.37	73
	Maritime	3.58	2.52	9.42	31
	Ontario	3.62	2.30	8.94	99
	Quebec	3.51	2.30	8.38	86
	Saskatchewan	3.84	2.46	9.49	74
	NATIONAL AVERAGES	3.65	2.39	9.05	UNWEIGHTED*
		3.62	2.36	8.96	WEIGHTED**

CASE HISTORY	PROVINCE	CASE HISTORY Frequency	CASE HISTORY Risk Factor	CASE HISTORY Importance	Number Reporting
CASE HISTORY 5. Determine appropriate technique or case management procedure	Alberta	3.56	2.48	9.15	116
	British Columbia	3.53	2.55	9.29	107
	Manitoba	3.34	2.19	7.96	73
	Maritime	3.35	2.39	8.26	31
	Ontario	3.37	2.39	8.97	99
	Quebec	3.45	2.47	8.95	86
	Saskatchewan	3.64	2.47	9.11	74
	NATIONAL AVERAGES	3.48	2.44	8.91	UNWEIGHTED*
		3.45	2.44	8.99	WEIGHTED**

CASE HISTORY	PROVINCE	CASE HISTORY Frequency	CASE HISTORY Risk Factor	CASE HISTORY Importance	Number Reporting
CASE HISTORY 6. Update case history	Alberta	3.66	2.82	10.50	116
	British Columbia	3.66	2.93	11.11	107
	Manitoba	3.67	2.79	10.59	73
	Maritime	3.48	2.81	9.94	31
	Ontario	3.77	2.88	11.20	99
	Quebec	3.67	2.83	10.69	86
	Saskatchewan	3.81	2.93	11.27	74
	NATIONAL AVERAGES	3.69	2.86	10.84	UNWEIGHTED*
		3.71	2.87	10.93	WEIGHTED**

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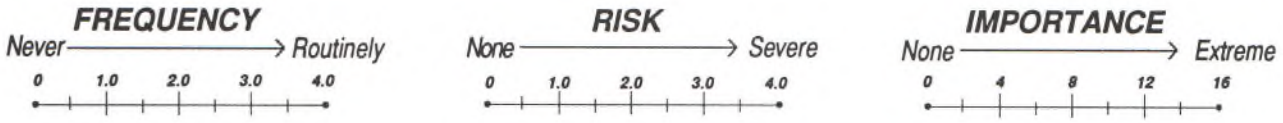

	PROVINCE	PHYSICAL EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
PHYSICAL EXAMINATION 7. Perform physical examination on new patient	Alberta	3.82	3.10	12.09	116
	British Columbia	3.65	3.21	12.27	107
	Manitoba	3.55	2.96	11.01	73
	Maritime	3.61	3.10	11.94	31
	Ontario	3.84	3.30	13.06	99
	Quebec	3.76	3.02	11.66	86
	Saskatchewan	3.73	3.26	12.53	74
	NATIONAL AVERAGES	3.73	3.15	12.14	UNWEIGHTED*
		3.77	3.18	12.36	WEIGHTED**

	PROVINCE	PHYSICAL EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
PHYSICAL EXAMINATION 8. Assess general state of health.	Alberta	3.58	2.75	10.22	116
	British Columbia	3.53	2.77	10.29	107
	Manitoba	3.27	2.42	8.30	73
	Maritime	3.26	2.71	9.48	31
	Ontario	3.65	2.73	10.37	99
	Quebec	3.50	2.67	9.86	86
	Saskatchewan	3.46	2.62	9.55	74
	NATIONAL AVERAGES	3.50	2.68	9.84	UNWEIGHTED*
		3.56	2.71	10.08	WEIGHTED**

	PROVINCE	PHYSICAL EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
PHYSICAL EXAMINATION 9. Perform regional examination	Alberta	3.60	2.82	10.58	116
	British Columbia	3.47	2.80	10.36	107
	Manitoba	3.52	2.74	10.08	73
	Maritime	3.52	2.65	10.06	31
	Ontario	3.70	2.95	11.32	99
	Quebec	3.55	2.77	10.33	86
	Saskatchewan	3.68	2.89	10.89	74
	NATIONAL AVERAGES	3.58	2.82	10.58	UNWEIGHTED*
		3.60	2.85	10.75	WEIGHTED**

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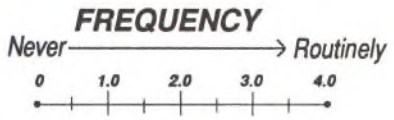

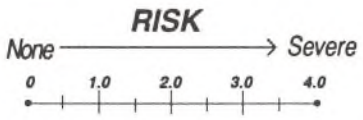

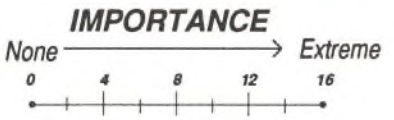

	PROVINCE	PHYSICAL EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
PHYSICAL EXAMINATION 10. Update physical examination	Alberta	3.54	2.78	10.13	116
	British Columbia	3.50	2.70	9.93	107
	Manitoba	3.53	2.55	9.26	73
	Maritime	3.19	2.65	9.03	31
	Ontario	3.70	2.74	10.42	99
	Quebec	3.44	2.52	8.99	86
	Saskatchewan	3.62	2.72	10.15	74
	NATIONAL AVERAGES	3.54	2.68	9.81	UNWEIGHTED*
		3.57	2.68	9.89	WEIGHTED**

	PROVINCE	NMS EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
NMS EXAMINATION 11. Perform orthopedic and/or neurological examination	Alberta	3.66	2.84	10.77	116
	British Columbia	3.59	2.80	10.38	107
	Manitoba	3.36	2.60	9.16	73
	Maritime	3.06	2.74	9.61	31
	Ontario	3.68	2.92	11.19	99
	Quebec	3.42	2.64	9.85	86
	Saskatchewan	3.49	2.88	10.59	74
	NATIONAL AVERAGES	3.52	2.79	10.35	UNWEIGHTED*
		3.57	2.81	10.55	WEIGHTED**

	PROVINCE	NMS EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
NMS EXAMINATION 12. Perform focused orthopedic and/or neurological examination	Alberta	3.29	2.89	9.97	116
	British Columbia	3.20	2.75	9.58	107
	Manitoba	3.03	2.52	8.32	73
	Maritime	3.00	2.74	9.23	31
	Ontario	3.52	2.92	10.74	99
	Quebec	3.22	2.73	9.69	86
	Saskatchewan	3.23	2.80	9.68	74
	NATIONAL AVERAGES	3.25	2.78	9.70	UNWEIGHTED*
		3.33	2.82	10.04	WEIGHTED**

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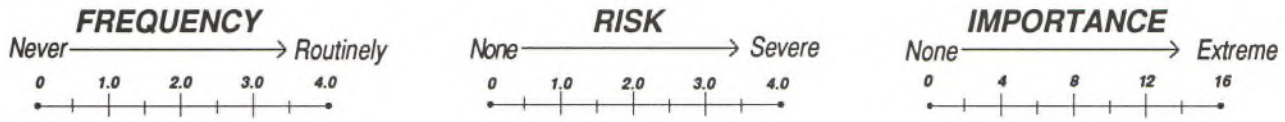


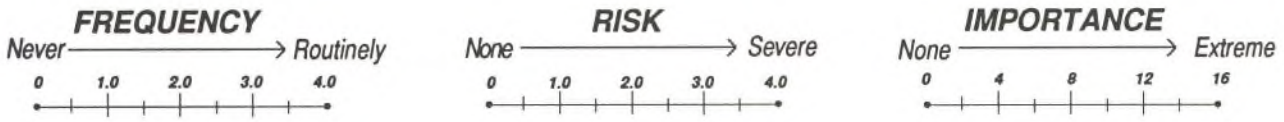
NMS EXAMINATION	PROVINCE	NMS EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
NMS EXAMINATION 13. Determine patient condition using orthopedic/neurological examination	Alberta	3.51	2.78	10.22	116
	British Columbia	3.38	2.67	9.73	107
	Manitoba	3.36	2.59	9.21	73
	Maritime	2.97	2.65	8.58	31
	Ontario	3.67	2.85	10.82	99
	Quebec	3.30	2.60	9.30	86
	Saskatchewan	3.46	2.73	9.74	74
	NATIONAL AVERAGES	3.43	2.71	9.82	UNWEIGHTED*
		3.48	2.74	10.07	WEIGHTED**

NMS EXAMINATION	PROVINCE	NMS EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
NMS EXAMINATION 14. Determine additional lab/X-ray/special study, and/or referrals indicated	Alberta	3.42	2.91	10.42	116
	British Columbia	3.31	2.84	10.08	107
	Manitoba	3.12	2.60	8.62	73
	Maritime	2.94	2.74	8.94	31
	Ontario	3.57	3.02	11.42	99
	Quebec	3.26	2.81	9.93	86
	Saskatchewan	3.42	2.78	9.86	74
	NATIONAL AVERAGES	3.34	2.84	10.08	UNWEIGHTED*
		3.40	2.90	10.51	WEIGHTED**

NMS EXAMINATION	PROVINCE	NMS EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
NMS EXAMINATION 15. Update orthopedic/ neurological tests	Alberta	3.37	2.55	9.05	116
	British Columbia	3.35	2.67	9.34	107
	Manitoba	3.25	2.36	8.15	73
	Maritime	2.97	2.65	8.74	31
	Ontario	3.53	2.78	10.37	99
	Quebec	3.10	2.34	8.13	86
	Saskatchewan	3.43	2.51	9.09	74
	NATIONAL AVERAGES	3.32	2.56	9.07	UNWEIGHTED*
		3.35	2.60	9.34	WEIGHTED**

* **Unweighted (Unwtd) data:** Responses indicated "Unwtd" represent the arithmetic average based upon all responses.

** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.



	PROVINCE	X-RAY EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
X-RAY EXAMINATION 16. Perform X-ray on new patient	Alberta	2.87	2.56	8.27	116
	British Columbia	1.76	2.13	4.49	107
	Manitoba	2.19	2.23	5.30	73
	Maritime	1.45	2.19	4.94	31
	Ontario	2.74	2.71	8.28	99
	Quebec	3.47	2.93	10.55	86
	Saskatchewan	1.82	2.31	4.89	74
	NATIONAL AVERAGES	2.44	2.47	6.94	UNWEIGHTED*
		2.69	2.60	7.89	WEIGHTED**

	PROVINCE	X-RAY EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
X-RAY EXAMINATION 17. Determine presence of pathology, fracture, or other significant findings	Alberta	3.37	3.24	11.58	116
	British Columbia	2.73	3.01	9.22	107
	Manitoba	3.00	3.05	9.62	73
	Maritime	2.55	2.87	8.84	31
	Ontario	3.36	3.29	11.45	99
	Quebec	3.56	3.30	12.36	86
	Saskatchewan	2.99	3.11	9.65	74
	NATIONAL AVERAGES	3.14	3.16	10.61	UNWEIGHTED*
		3.27	3.22	11.14	WEIGHTED**

	PROVINCE	X-RAY EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
X-RAY EXAMINATION 18. Determine instability joint dysfunction	Alberta	1.87	2.03	4.56	116
	British Columbia	1.41	1.88	3.37	107
	Manitoba	1.78	1.73	3.79	73
	Maritime	1.13	1.84	3.19	31
	Ontario	1.86	2.07	4.61	99
	Quebec	2.03	2.07	5.47	86
	Saskatchewan	1.46	1.76	3.19	74
	NATIONAL AVERAGES	1.71	1.93	4.14	UNWEIGHTED*
		1.80	2.00	4.49	WEIGHTED**

* **Unweighted (Unwtd) data:** Responses indicated "Unwtd" represent the arithmetic average based upon all responses.

** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.

FREQUENCY
Never → Routinely
0 1.0 2.0 3.0 4.0

RISK
None → Severe
0 1.0 2.0 3.0 4.0

IMPORTANCE
None → Extreme
0 4 8 12 16

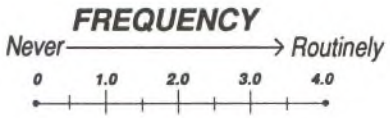
	PROVINCE	X-RAY EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
X-RAY EXAMINATION 19. Determine presence of subluxation	Alberta	2.47	1.71	5.25	116
	British Columbia	1.67	1.34	3.19	107
	Manitoba	1.79	1.19	3.25	73
	Maritime	1.58	1.55	3.65	31
	Ontario	2.27	1.67	4.98	99
	Quebec	3.00	1.99	7.09	86
	Saskatchewan	0.89	0.80	1.11	74
	NATIONAL AVERAGES	2.04	1.49	4.24	UNWEIGHTED*
		2.28	1.64	4.97	WEIGHTED**

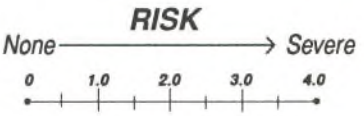
	PROVINCE	X-RAY EXAMINATION Frequency	Risk Factor	Importance	Number Reporting
X-RAY EXAMINATION 20. Update X-ray/perform new X-ray	Alberta	2.62	2.51	7.49	116
	British Columbia	1.52	1.79	3.31	107
	Manitoba	1.97	2.10	4.41	73
	Maritime	1.81	2.00	5.13	31
	Ontario	2.49	2.39	6.57	99
	Quebec	2.83	2.30	7.48	86
	Saskatchewan	2.15	2.30	5.38	74
	NATIONAL AVERAGES	2.25	2.22	5.79	UNWEIGHTED*
		2.39	2.27	6.23	WEIGHTED**

	PROVINCE	LABORATORY AND SPECIAL STUDIES Frequency	Risk Factor	Importance	Number Reporting
LABORATORY AND SPECIAL STUDIES 21. Draw blood, collect urine, or other laboratory procedures	Alberta	0.07	1.28	0.16	116
	British Columbia	0.0	0.95	0.0	107
	Manitoba	0.10	0.97	0.12	73
	Maritime	0.19	1.29	0.35	31
	Ontario	0.23	1.27	0.49	99
	Quebec	0.24	1.15	0.40	86
	Saskatchewan	0.04	1.09	0.07	74
	NATIONAL AVERAGES	0.12	1.14	0.22	UNWEIGHTED*
		0.16	1.17	0.31	WEIGHTED**

* **Unweighted (Unwtd) data:** Responses indicated "Unwtd" represent the arithmetic average based upon all responses.

** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.





	PROVINCE	LABORATORY AND SPECIAL STUDIES Frequency	Risk Factor	Importance	Number Reporting
LABORATORY AND SPECIAL STUDIES 22. Order laboratory tests	Alberta	0.27	1.40	0.78	116
	British Columbia	0.17	1.06	0.25	107
	Manitoba	0.38	1.15	0.55	73
	Maritime	0.29	1.81	0.97	31
	Ontario	0.41	1.42	0.92	99
	Quebec	0.94	1.34	1.79	86
	Saskatchewan	0.62	1.41	1.36	74
	NATIONAL AVERAGES	0.43	1.32	0.91	UNWEIGHTED*
		0.48	1.34	1.00	WEIGHTED**

	PROVINCE	LABORATORY AND SPECIAL STUDIES Frequency	Risk Factor	Importance	Number Reporting
LABORATORY AND SPECIAL STUDIES 23. Refer patients for MRI, CT scan, EKG or other specialized procedure	Alberta	1.03	2.14	2.85	116
	British Columbia	0.81	1.81	1.91	107
	Manitoba	0.97	1.67	2.10	73
	Maritime	0.90	2.00	2.23	31
	Ontario	0.96	2.05	2.39	99
	Quebec	1.29	2.01	3.02	86
	Saskatchewan	1.22	1.95	2.81	74
	NATIONAL AVERAGES	1.03	1.96	2.49	UNWEIGHTED*
		1.03	1.99	2.52	WEIGHTED**

	PROVINCE	LABORATORY AND SPECIAL STUDIES Frequency	Risk Factor	Importance	Number Reporting
LABORATORY AND SPECIAL STUDIES 24. Confirm diagnosis/ health-threatening condition	Alberta	0.82	2.06	2.27	116
	British Columbia	0.78	1.69	1.96	107
	Manitoba	1.15	1.75	2.71	73
	Maritime	1.48	2.06	3.94	31
	Ontario	1.21	2.07	3.30	99
	Quebec	1.66	2.22	4.38	86
	Saskatchewan	1.42	2.28	3.97	74
	NATIONAL AVERAGES	1.15	2.01	3.06	UNWEIGHTED*
		1.21	2.04	3.22	WEIGHTED**

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* * **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.

FREQUENCY
Never → Routinely
0 1.0 2.0 3.0 4.0

RISK
None → Severe
0 1.0 2.0 3.0 4.0

IMPORTANCE
None → Extreme
0 4 8 12 16

	PROVINCE	LABORATORY AND SPECIAL STUDIES Frequency	Risk Factor	Importance	Number Reporting
LABORATORY AND SPECIAL STUDIES 25. Augment history, examination, or X-ray findings using information from laboratory or specialized studies	Alberta	1.01	1.91	2.59	116
	British Columbia	1.01	1.65	2.33	107
	Manitoba	1.25	1.62	2.81	73
	Maritime	1.32	1.90	3.74	31
	Ontario	1.34	2.02	3.59	99
	Quebec	1.63	1.88	3.76	86
	Saskatchewan	1.64	1.86	3.85	74
	NATIONAL AVERAGES	1.28	1.84	3.13	UNWEIGHTED*
		1.32	1.89	3.27	WEIGHTED**

	PROVINCE	DIAGNOSIS Frequency	Risk Factor	Importance	Number Reporting
DIAGNOSIS 26. Relate problems to process	Alberta	3.10	2.72	9.16	116
	British Columbia	3.10	2.69	9.16	107
	Manitoba	2.99	2.66	8.68	73
	Maritime	2.94	2.55	8.32	31
	Ontario	3.22	2.67	9.30	99
	Quebec	3.01	2.39	8.18	86
	Saskatchewan	3.04	2.69	8.77	74
	NATIONAL AVERAGES	3.08	2.64	8.89	UNWEIGHTED*
		3.12	2.61	8.94	WEIGHTED**

	PROVINCE	DIAGNOSIS Frequency	Risk Factor	Importance	Number Reporting
DIAGNOSIS 27. Distinguish between urgent/less urgent	Alberta	3.40	3.28	11.59	116
	British Columbia	3.33	3.26	11.48	107
	Manitoba	3.29	3.19	11.18	73
	Maritime	3.16	3.03	10.35	31
	Ontario	3.42	3.28	11.82	99
	Quebec	3.33	3.02	10.89	86
	Saskatchewan	3.34	3.24	11.49	74
	NATIONAL AVERAGES	3.35	3.21	11.37	UNWEIGHTED*
		3.37	3.21	11.45	WEIGHTED**

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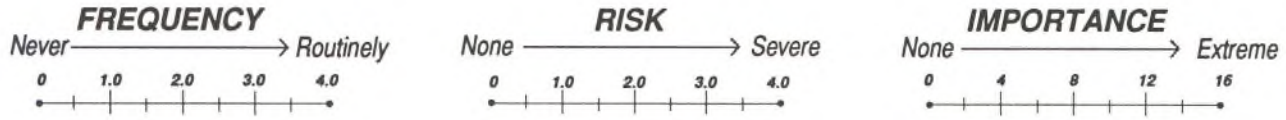
* * **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.



DIAGNOSIS	PROVINCE	DIAGNOSIS Frequency	DIAGNOSIS Risk Factor	DIAGNOSIS Importance	Number Reporting
DIAGNOSIS 28. Predict effectiveness of chiropractic	Alberta	3.48	2.06	7.43	116
	British Columbia	3.39	2.08	7.53	107
	Manitoba	3.38	1.78	6.55	73
	Maritime	3.16	1.94	6.84	31
	Ontario	3.65	2.35	9.01	99
	Quebec	3.15	1.95	6.86	86
	Saskatchewan	3.34	2.19	7.85	74
NATIONAL AVERAGES		3.40	2.07	7.54	UNWEIGHTED*
		3.44	2.14	7.88	WEIGHTED**

DIAGNOSIS	PROVINCE	DIAGNOSIS Frequency	DIAGNOSIS Risk Factor	DIAGNOSIS Importance	Number Reporting
DIAGNOSIS 29. Refer patients to other health care practitioners	Alberta	2.26	2.77	6.41	116
	British Columbia	2.52	2.80	7.47	107
	Manitoba	2.41	2.70	6.99	73
	Maritime	2.39	2.74	7.13	31
	Ontario	2.39	2.58	6.80	99
	Quebec	2.11	2.41	5.71	86
	Saskatchewan	2.86	2.74	8.28	74
NATIONAL AVERAGES		2.41	2.68	6.91	UNWEIGHTED*
		2.35	2.61	6.67	WEIGHTED**

DIAGNOSIS	PROVINCE	DIAGNOSIS Frequency	DIAGNOSIS Risk Factor	DIAGNOSIS Importance	Number Reporting
DIAGNOSIS 30. Arrive at a diagnosis/ impression	Alberta	3.67	2.72	10.23	116
	British Columbia	3.69	2.82	10.82	107
	Manitoba	3.63	2.56	9.84	73
	Maritime	3.29	2.52	9.26	31
	Ontario	3.84	2.83	11.03	99
	Quebec	3.44	2.36	8.64	86
	Saskatchewan	3.59	2.70	10.01	74
NATIONAL AVERAGES		3.63	2.67	10.11	UNWEIGHTED*
		3.67	2.68	10.21	WEIGHTED**

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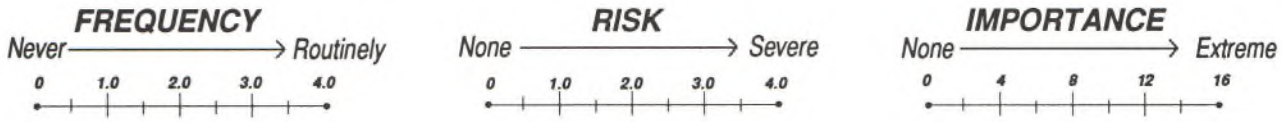
* * **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.



CHIROPRACTIC TECHNIQUE	PROVINCE	CHIROPRACTIC TECHNIQUE Frequency	Risk Factor	Importance	Number Reporting
31. Perform specific chiropractic examination	Alberta	3.90	2.53	9.91	116
	British Columbia	3.84	2.50	9.85	107
	Manitoba	3.89	2.40	9.41	73
	Maritime	3.84	2.48	9.68	31
	Ontario	3.89	2.75	10.85	99
	Quebec	3.71	2.51	9.70	86
	Saskatchewan	3.77	2.18	8.41	74
	NATIONAL AVERAGES	3.84	2.50	9.76	UNWEIGHTED*
		3.84	2.58	10.12	WEIGHTED**

CHIROPRACTIC TECHNIQUE	PROVINCE	CHIROPRACTIC TECHNIQUE Frequency	Risk Factor	Importance	Number Reporting
32. Utilize instruments	Alberta	2.15	1.41	4.29	116
	British Columbia	1.73	1.10	2.63	107
	Manitoba	1.85	1.00	2.66	73
	Maritime	1.42	1.03	2.29	31
	Ontario	1.97	1.25	3.56	99
	Quebec	2.45	1.40	4.37	86
	Saskatchewan	1.20	0.84	1.76	74
	NATIONAL AVERAGES	1.89	1.18	3.25	UNWEIGHTED*
		2.02	1.25	3.57	WEIGHTED**

CHIROPRACTIC TECHNIQUE	PROVINCE	CHIROPRACTIC TECHNIQUE Frequency	Risk Factor	Importance	Number Reporting
33. Determine case management/technique	Alberta	3.78	2.34	8.97	116
	British Columbia	3.74	2.16	8.50	107
	Manitoba	3.75	2.18	8.36	73
	Maritime	3.61	2.06	7.58	31
	Ontario	3.79	2.49	9.64	99
	Quebec	3.54	2.06	7.71	86
	Saskatchewan	3.59	2.14	7.95	74
	NATIONAL AVERAGES	3.70	2.23	8.53	UNWEIGHTED*
		3.71	2.28	8.77	WEIGHTED**

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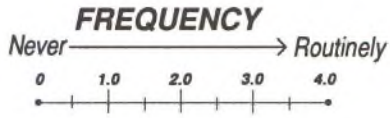
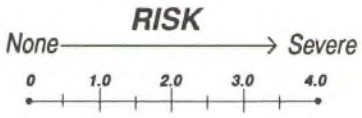
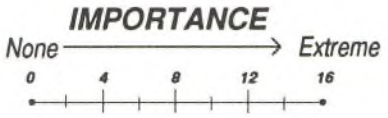
** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.







	PROVINCE	CHIROPRACTIC TECHNIQUES Frequency	Risk Factor	Importance	Number Reporting
CHIROPRACTIC TECHNIQUE 34. Perform chiropractic adjustive techniques	Alberta	4.00	2.39	9.55	116
	British Columbia	3.88	2.08	8.31	107
	Manitoba	3.99	2.18	8.70	73
	Maritime	3.97	2.19	8.68	31
	Ontario	3.97	2.58	10.22	99
	Quebec	3.79	2.09	8.20	86
	Saskatchewan	3.91	2.30	9.07	74
	NATIONAL AVERAGES	3.93	2.27	9.02	UNWEIGHTED*
		3.92	2.33	9.23	WEIGHTED**

	PROVINCE	CHIROPRACTIC TECHNIQUES Frequency	Risk Factor	Importance	Number Reporting
CHIROPRACTIC TECHNIQUE 35. Update chiropractic examination	Alberta	3.51	2.18	8.09	116
	British Columbia	3.52	2.12	7.85	107
	Manitoba	3.68	2.18	8.23	73
	Maritime	3.55	2.03	7.52	31
	Ontario	3.81	2.44	9.45	99
	Quebec	3.40	2.16	7.79	86
	Saskatchewan	3.62	2.26	8.38	74
	NATIONAL AVERAGES	3.58	2.21	8.26	UNWEIGHTED*
		3.61	2.27	8.51	WEIGHTED**

	PROVINCE	SUPPORTIVE TECHNIQUE Frequency	Risk Factor	Importance	Number Reporting
SUPPORTIVE TECHNIQUE 36. Evaluate patient condition	Alberta	3.29	2.18	7.45	116
	British Columbia	3.49	2.09	7.65	107
	Manitoba	3.42	2.01	7.19	73
	Maritime	3.42	2.13	7.65	31
	Ontario	3.59	2.13	7.93	99
	Quebec	3.26	2.00	7.03	86
	Saskatchewan	3.38	2.18	7.58	74
	NATIONAL AVERAGES	3.41	2.11	7.50	UNWEIGHTED*
		3.44	2.10	7.56	WEIGHTED**

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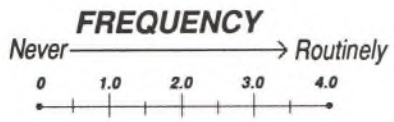
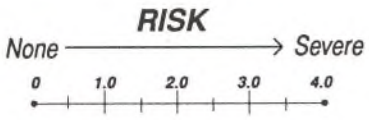
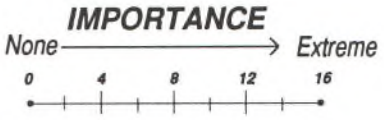
* * **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.







	PROVINCE	SUPPORTIVE TECHNIQUE Frequency	Risk Factor	Importance	Number Reporting
SUPPORTIVE TECHNIQUE 37. Determine use of supportive technique	Alberta	3.16	1.86	5.88	116
	British Columbia	3.31	1.57	5.16	107
	Manitoba	3.25	1.89	6.22	73
	Maritime	3.16	1.48	4.84	31
	Ontario	3.47	1.35	4.85	99
	Quebec	3.24	1.62	5.14	86
	Saskatchewan	3.15	1.62	5.00	74
	NATIONAL AVERAGES	3.26	1.64	5.34	UNWEIGHTED*
		3.32	1.55	5.17	WEIGHTED**

	PROVINCE	SUPPORTIVE TECHNIQUE Frequency	Risk Factor	Importance	Number Reporting
SUPPORTIVE TECHNIQUE 38. Perform treatment procedures other than adjustive	Alberta	2.55	1.69	5.07	116
	British Columbia	2.78	1.40	4.36	107
	Manitoba	2.66	1.40	4.16	73
	Maritime	2.74	1.68	5.16	31
	Ontario	2.66	1.61	4.90	99
	Quebec	2.37	1.55	4.30	86
	Saskatchewan	2.76	1.76	5.18	74
	NATIONAL AVERAGES	2.63	1.57	4.70	UNWEIGHTED*
		2.60	1.57	4.68	WEIGHTED**

	PROVINCE	SUPPORTIVE TECHNIQUE Frequency	Risk Factor	Importance	Number Reporting
SUPPORTIVE TECHNIQUE 39. Refer patient to other health care practitioners	Alberta	2.05	1.66	3.98	116
	British Columbia	2.35	1.55	4.20	107
	Manitoba	1.85	1.38	3.10	73
	Maritime	1.94	1.68	3.74	31
	Ontario	1.93	1.51	3.51	99
	Quebec	1.86	1.41	3.17	86
	Saskatchewan	2.43	1.78	4.73	74
	NATIONAL AVERAGES	2.07	1.56	3.79	UNWEIGHTED*
		2.01	1.52	3.63	WEIGHTED**

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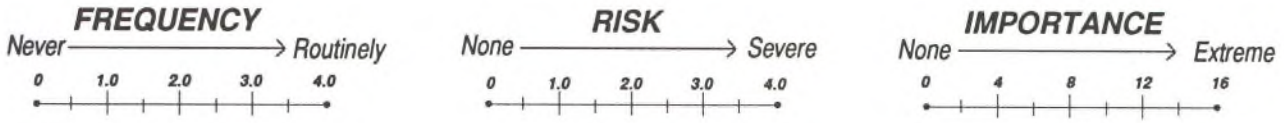
** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.



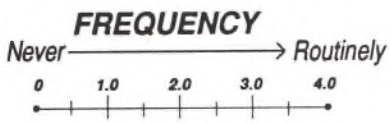
	PROVINCE	SUPPORTIVE TECHNIQUE Frequency	Risk Factor	Importance	Number Reporting
SUPPORTIVE TECHNIQUE 40. Monitor effectiveness of non-adjustive technique	Alberta	2.70	1.66	4.91	116
	British Columbia	2.85	1.48	4.76	107
	Manitoba	2.71	1.44	4.29	73
	Maritime	2.58	1.58	4.65	31
	Ontario	2.93	1.72	5.81	99
	Quebec	2.44	1.60	4.93	86
	Saskatchewan	2.64	1.51	4.50	74
	NATIONAL AVERAGES	2.71	1.58	4.89	UNWEIGHTED*
		2.74	1.62	5.18	WEIGHTED**

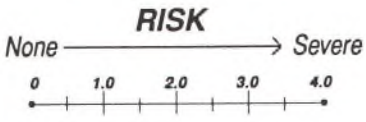
	PROVINCE	CASE MANAGEMENT Frequency	Risk Factor	Importance	Number Reporting
CASE MANAGEMENT 41. Discuss alternatives with patient	Alberta	2.92	2.05	6.30	116
	British Columbia	2.80	2.07	6.10	107
	Manitoba	2.67	2.03	5.59	73
	Maritime	2.81	2.00	5.90	31
	Ontario	3.03	2.17	6.90	99
	Quebec	2.87	1.74	5.57	86
	Saskatchewan	3.11	2.28	7.35	74
	NATIONAL AVERAGES	2.90	2.05	6.28	UNWEIGHTED*
		2.93	2.04	6.33	WEIGHTED**

	PROVINCE	CASE MANAGEMENT Frequency	Risk Factor	Importance	Number Reporting
CASE MANAGEMENT 42. Recommend and/or arrange for other services	Alberta	3.06	2.72	8.66	116
	British Columbia	2.90	2.45	7.83	107
	Manitoba	2.85	2.64	8.00	73
	Maritime	3.06	2.39	7.90	31
	Ontario	2.96	2.58	8.48	99
	Quebec	2.76	2.22	6.79	86
	Saskatchewan	3.15	2.51	8.57	74
	NATIONAL AVERAGES	2.95	2.52	8.07	UNWEIGHTED*
		2.92	2.49	7.99	WEIGHTED**

* **Unweighted (Unwtd) data:** Responses indicated "Unwtd" represent the arithmetic average based upon all responses.

** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.





	PROVINCE	CASE MANAGEMENT Frequency	CASE MANAGEMENT Risk Factor	CASE MANAGEMENT Importance	Number Reporting
CASE MANAGEMENT 43. Modify case management	Alberta	3.51	2.58	9.28	116
	British Columbia	3.47	2.56	9.20	107
	Manitoba	3.51	2.38	8.74	73
	Maritime	3.55	2.35	8.61	31
	Ontario	3.70	2.62	9.95	99
	Quebec	3.48	2.45	9.09	86
	Saskatchewan	3.59	2.47	9.15	74
	NATIONAL AVERAGES	3.54	2.51	9.23	UNWEIGHTED*
		3.57	2.54	9.44	WEIGHTED**

	PROVINCE	CASE MANAGEMENT Frequency	CASE MANAGEMENT Risk Factor	CASE MANAGEMENT Importance	Number Reporting
CASE MANAGEMENT 44. Encourage patient to change habits/ lifestyle	Alberta	3.59	2.20	8.08	116
	British Columbia	3.56	2.20	8.01	107
	Manitoba	3.56	2.15	7.84	73
	Maritime	3.58	1.90	7.10	31
	Ontario	3.67	2.19	8.38	99
	Quebec	3.76	1.95	7.50	86
	Saskatchewan	3.62	2.23	8.35	74
	NATIONAL AVERAGES	3.62	2.14	7.98	UNWEIGHTED*
		3.65	2.13	8.03	WEIGHTED**

	PROVINCE	CASE MANAGEMENT Frequency	CASE MANAGEMENT Risk Factor	CASE MANAGEMENT Importance	Number Reporting
CASE MANAGEMENT 45. Maintain written record	Alberta	3.62	2.45	9.07	116
	British Columbia	3.60	2.50	9.24	107
	Manitoba	3.56	2.38	8.68	73
	Maritime	3.61	2.32	8.71	31
	Ontario	3.74	2.40	9.22	99
	Quebec	3.72	2.51	9.49	86
	Saskatchewan	3.66	2.58	9.80	74
	NATIONAL AVERAGES	3.65	2.46	9.21	UNWEIGHTED*
		3.68	2.46	9.26	WEIGHTED**

* **Unweighted (Unwtd) data:** Responses indicated "Unwtd" represent the arithmetic average based upon all responses.

** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.

TREATMENT PROCEDURES

Pages 14-15 of the survey directed participants to indicate the primary technique approach used in their practices, as well as whether or not they had used during the previous two years any of the adjustive and non-adjustive techniques listed. Response data by province are shown on the following tables as a percent.

Treatment Procedure	FREQUENCY OF UTILIZATION (By percent)							NATIONAL AVERAGES
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	Unwtd */ Wtd**
PRIMARY TECHNIQUE APPROACH								
Upper Cervical	1.8	4.8	0.0	0.0	0.0	4.7	0.0	1.9 / 2.1
Full Spine	96.4	93.3	95.7	96.6	97.9	90.7	95.8	95.0 /95.1
Other	1.8	1.9	4.3	3.4	2.1	4.7	4.2	3.0 / 2.8

Treatment Procedure	FREQUENCY OF UTILIZATION (By Percent)							NATIONAL AVERAGES
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	Unwtd */ Wtd**
ADJUSTIVE TECHNIQUE								
Activator	58.4	35.6	30.1	50.0	50.5	35.6	20.5	40.7 /43.6
Applied kinesiology	37.2	39.4	19.2	30.0	22.7	39.1	23.3	31.0 /31.0
Barge	0.0	1.0	2.7	0.0	2.1	2.3	0.0	1.2 / 1.6
Cox/Flexion-Distraction	31.0	27.9	24.7	23.3	16.5	21.8	27.4	25.0 /22.4
Cranial	23.9	29.8	15.1	23.3	16.5	27.6	17.8	22.4 /22.2
Diversified	91.2	91.3	90.4	86.7	88.7	81.6	78.1	87.3 /87.3
Gonstead	57.5	35.6	49.3	33.3	23.7	39.1	26.0	38.8 /35.0
Grostic	0.9	7.7	1.4	0.0	3.1	6.9	2.7	3.6 / 4.3
Life upper cervical	0.9	1.0	1.4	3.3	3.1	5.7	0.0	2.1 / 2.9
Logan Basic	26.5	25.0	27.4	26.7	24.7	28.7	19.2	25.5 /25.9
Meric	31.0	33.7	31.5	30.0	44.3	34.5	41.1	35.5 /37.7
NIMMO/Tonus receptor	30.1	36.5	37.0	40.0	22.7	47.1	19.2	32.6 /32.4
NUCCA	0.9	5.8	0.0	0.0	0.0	0.0	0.0	1.2 / 1.0
Palmer upper cervical/HIO	28.3	17.3	30.1	26.7	15.5	33.3	9.6	22.7 /22.3
Pettibon	0.9	1.0	4.1	0.0	0.0	3.4	0.0	1.4 / 1.3
Pierce-Stillwagon	14.2	8.7	30.1	6.7	12.4	17.2	4.1	13.7 /13.6
SOT	45.1	56.7	19.2	60.0	37.1	51.7	37.0	43.3 /44.2
Thompson	45.1	26.9	52.1	20.0	25.8	26.4	32.9	33.8 /30.0
Toftness	1.8	4.8	0.0	0.0	1.0	3.4	0.0	1.9 / 2.2
Other	14.2	16.3	11.0	23.3	14.4	17.2	17.8	15.6 /15.5

* **Unweighted (Unwtd) data:** Responses indicated "Unwtd" represent the arithmetic average based upon all responses.

** **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.

Treatment Procedure	FREQUENCY OF UTILIZATION (By Percent)							NATIONAL AVERAGES
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Sas-katchewan	Unwtd */ Wtd**
NON-ADJUSTIVE TECHNIQUE								
Acupressure or meridian therapy	61.9	71.2	65.8	76.7	69.1	60.9	63.0	66.0 /66.3
Acupuncture	10.6	5.8	4.1	20.0	22.7	3.4	1.4	9.2 / 12.2
Biofeedback	2.7	7.7	1.4	6.7	7.2	4.6	5.5	5.0 / 5.7
Bedrest	74.3	73.1	76.7	76.7	68.0	52.9	78.1	70.7 /67.0
Bracing with lumbar support, cervical collar, or other devices	90.3	76.9	93.2	83.3	88.7	63.2	80.8	82.3 /80.9
Casting or athletic taping/strapping	54.0	48.1	60.3	26.7	58.8	49.4	50.7	52.0 /53.4
Corrective or therapeutic exercise	98.2	95.2	97.3	93.3	97.9	94.3	97.3	96.5 /96.5
Diathermy-shortwave or microwave	7.1	1.0	6.8	20.0	25.8	14.9	0.0	10.1 /15.0
Direct current, electrodiagnosis, or iontophoresis	4.4	3.8	23.3	23.3	20.6	14.9	2.7	11.8 /14.0
Electrical stimulation-TENS, high-volt, low-volt, EMS	39.8	12.5	49.3	53.3	63.9	39.1	31.5	39.7 /44.9
Foot orthotics or heel lifts	74.3	80.8	76.7	80.0	79.4	74.7	82.2	78.0 /77.8
Homeopathic remedies	27.4	13.5	13.7	30.0	21.6	39.1	12.3	22.2 /24.7
Hot pack/moist heat	57.5	58.7	74.0	56.7	60.8	51.7	75.3	61.7 /59.1
Ice pack/cryotherapy	85.8	90.4	97.3	86.7	92.8	77.0	93.2	88.9 /87.9
Infrared-baker, heat lamp or hot pad	6.2	3.8	6.8	10.0	16.5	16.1	4.1	9.0 / 12.1
Interferential current	15.9	2.9	42.5	33.3	45.4	18.4	21.9	23.9 /27.4
Massage therapy	71.7	79.8	72.6	73.3	72.2	56.3	86.3	73.0 /70.1
Nutritional counseling, therapy or supplements	80.5	76.9	75.3	83.3	73.2	75.9	86.3	78.2 /76.2
Paraffin bath	0.9	1.9	1.4	0.0	3.1	1.1	0.0	1.4 / 1.9
Traction	48.7	73.1	67.1	66.7	62.9	41.4	68.5	60.1 /58.0
Ultrasound	31.0	3.8	47.9	36.7	53.6	40.2	9.6	31.0 /37.6
Ultraviolet therapy	0.9	1.0	1.4	3.3	1.0	2.3	1.4	1.4 / 1.4
Vibratory therapy	49.6	25.0	50.7	60.0	40.2	40.2	50.7	43.0 /40.4
Whirlpool or hydrotherapy	7.1	15.4	9.6	3.3	8.2	3.4	6.8	8.3 / 8.0
Other	13.3	16.3	16.4	13.3	13.4	8.0	6.8	12.7 /12.4

* **Unweighted (Unwtd) data:** Responses indicated "Unwtd" represent the arithmetic average based upon all responses.

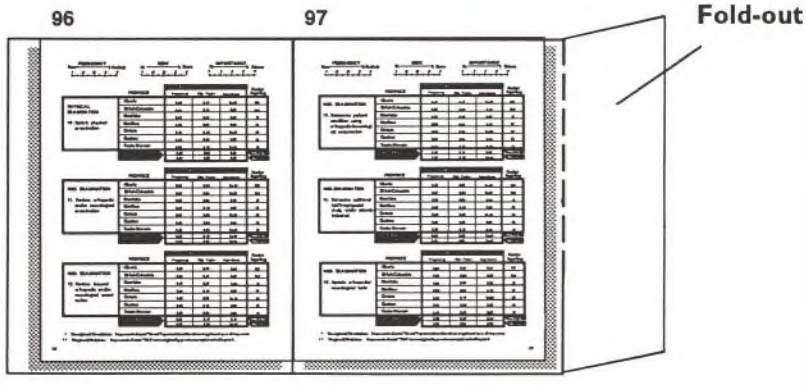
* * **Weighted (Wtd) data:** Responses indicated "Wtd" were weighted by province as explained in Chapter 5.

Reference of Survey Information by Province

The table which appeared on Page 85 has been reprinted on this fold-out to facilitate the reading and comparing of provincial data provided in the tables in this chapter.

	PROVINCIAL DATA						
	Alberta	British Columbia	Manitoba	Maritime	Ontario	Quebec	Saskatchewan
Total number of **licensed** practitioners*	381	485	132	67	1299	773	124
Estimated number of **licensed full-time** practitioners**	359	419	122	49	1029	634	111
Number of **surveys mailed**	156	160	132	67	180	166	121
Number of **surveys returned** by full-time licensed practitioners	116	107	73	31	99	87	74

* From provincial lists
** From survey responses



Epilogue

It is common for an abundance of newly acquired information to produce a proportionate number of questions. Given this trend, the questions raised by the NBCE *Job Analysis of Chiropractic in Canada* data came as no surprise.

These questions include the obvious: "Who might use this new data, and how might it appropriately be applied?" Those closely connected with the study additionally asked such questions as, "Have we accomplished our objectives?" "What are the limitations of the data gathered?" and "Would we want to make any procedural modifications in similar studies conducted in the future?"

To a very large degree, the applications of the data will remain fluid, to be considered, weighed and imposed according to a broad set of needs found in disparate corners of society. Academicians may find the job analysis data useful for one purpose, while provincial licensing authorities may find it useful for another. Individual health care providers may benefit by comparing the data to their own habits and knowledge.

In exploring the possibilities of further data applicability, the following criteria should be acknowledged: 1) the elements which were measured, and 2) the methods by which those elements were rated. The job analysis sought to determine the conditions the chiropractor typically encounters, the treatment he/she is likely to administer or recommend, and the risk associated with rendering this treatment.

A job analysis is equipped to provide information about the conditions and activities licensed chiropractic practitioners should be best prepared to handle -- those they encounter most often, and those which are accompanied by the greatest risk. This information can be quite valuable. For example:

- Chiropractic colleges typically seek to teach and thoroughly test student proficiency in the activities chiropractors will be called upon to perform routinely, particularly those which are performed most frequently and those which carry a significant degree of risk.

- Licensing authorities typically endeavor to assess licensure candidates' knowledge and skills in areas that they as practitioners are likely to encounter, particularly those which carry a significant degree of risk.

As stated at the beginning of this report, the NBCE "sought to provide the health care field with the most credible, relevant, and accurate reference possible, one which documents chiropractic as it is defined by those who practice it as a full-time profession." Those who guided and conducted the job analysis project firmly believe this objective has been achieved.

It was not the NBCE's objective to define a chiropractic scope of practice; this is determined legislatively on a province-by-province basis. Nor was it the intention of the NBCE to establish guidelines for practice, to promote any particular philosophical doctrine, or to in any way infer judgments.

In evaluating the limitations of this study, several areas surfaced during the project. Some of these --such as the accuracy of licensee lists provided by the provinces, the recollections of the respondents who provided information, and the number of individuals (approximately 30%) who failed to respond to the survey -- were largely outside NBCE control.

In other areas, the NBCE proceeded on the basis of job analysis research and procedural precedent. Areas inevitably accompanied by the possibility of imprecision included: the survey text upon which the resulting data hinged; the supposition that all respondents would similarly interpret the survey's rating scales and terms; and the interpretation of the importance factor within the study.

A wealth of information beyond that published in this text still lies within the data amassed by the NBCE job analysis survey instrument. Time, staff, and funding limitations dictated that this publication report the project findings in an abbreviated or summarized version.

The NBCE conducted similar job analyses in the United States, Australia, and New Zealand, as requested by the licensing agencies in those countries. The United States job analysis report is currently available by contacting the NBCE. Upon completion of statistical tabulation and analyses, a United States state-by-state data analysis, and the Australian and New Zealand reports will also be published by the NBCE.

APPENDICES

Appendix A

Please complete this form for each of ten patients. (ONLY the doctor is to complete the form.)

PRACTICE MODEL LOG

PATIENT DEMOGRAPHIC DATA

April 17, 1990

AGE

- ☐ 17 years or under
- ☐ 18 to 30 years
- ☐ 31 to 50 years
- ☐ 51 to 64 years
- ☐ 65 years or older

SEX

- ☐ MALE
- ☐ FEMALE

RACE

- ☐ White/Caucasian
- ☐ Black/Negro
- ☐ Asian/Oriental
- ☐ Native American
- ☐ Other _____

OCCUPATION

- ☐ Physical labor
- ☐ Clerical/Secretarial
- ☐ Executive/Professional
- ☐ Teacher
- ☐ Student
- ☐ Homemaker
- ☐ Athlete
- ☐ Other _____

PATIENT SOURCE

- ☐ Referred by a medical physician
- ☐ Referred by another chiropractor
- ☐ Referred by other health practitioner
- ☐ Referred by another patient
- ☐ Self referred or advertisement
- ☐ Other _____

PLACE OF PATIENT VISIT

- ☐ Doctor's office
- ☐ Hospital
- ☐ Other than office or hospital

TYPE OF PATIENT VISIT

- ☐ Initial/New patient visit
- ☐ Returning patient visit
- ☐ Reactivated patient

REASON FOR CARE/VISIT

- ☐ Injury
- ☐ Illness
- ☐ Health Improvement
- ☐ Maintenance
- ☐ Second opinion

PRIMARY SYSTEM OF INVOLVEMENT

- ☐ Musculoskeletal
- ☐ Central nervous system (brain, spinal cord)
- ☐ Peripheral nervous system (spinal nerves, autonomic nerves)
- ☐ Respiratory
- ☐ Cardiovascular
- ☐ Gastrointestinal
- ☐ Genitourinary/reproductive
- ☐ Hemopoietic/immune
- ☐ Metabolic/endocrine
- ☐ Other _____

Practice Model Log (Continued on next page)

Appendix A

PRELIMINARY PROCEDURES PERFORMED/ORDERED

CASE HISTORY

- ☐ Complete
- ☐ Partial
- ☐ Pertaining only to complaint
- ☐ Update of clinical notes

PHYSICAL EXAMINATION

- ☐ Complete
- ☐ Partial
- ☐ Pertaining only to complaint
- ☐ Vital signs only

ORTHOPEDIC EXAMINATION

- ☐ Complete
- ☐ Partial
- ☐ Pertaining only to complaint
- ☐ Recheck of one or two tests

NEUROLOGICAL EXAMINATION

- ☐ Complete
- ☐ Partial
- ☐ Pertaining only to complaint
- ☐ Recheck of one or two tests

X-RAY EXAMINATION

- ☐ Full spine/postural study
- ☐ Area studies/more than one area of spine
- ☐ Area study/only area of complaint
- ☐ Extremity study
- ☐ Chest
- ☐ Other _____

LABORATORY TESTS

- ☐ Complete blood count
- ☐ Serum chemistry
- ☐ Urinalysis
- ☐ Other _____

SPECIAL STUDIES

- ☐ CT scan
- ☐ MRI
- ☐ Doppler ultrasound
- ☐ Thermography
- ☐ Other _____

REFERRAL FOR SECOND OPINION OR ALTERNATIVE TREATMENT

- ☐ YES
- ☐ NO

CHIROPRACTIC PROCEDURES PERFORMED

SPINAL ANALYSIS

- ☐ Motion and/or static palpation
- ☐ Postural and/or plumb-line analysis
- ☐ Kinesiology/muscle testing
- ☐ Leg length check
- ☐ Skin temperature instrumentation
- ☐ Other _____

SPINAL ADJUSTMENT/CORRECTIVE TECHNIQUES

- ☐ Spinal or pelvic adjustment
- ☐ Extremity or other adjustment
- ☐ Pressure point technique
- ☐ Pelvic blocking
- ☐ Activator
- ☐ Other _____

Practice Model Log (Continued on next page)

Appendix A

NATURE OF PRIMARY CONDITION/COMPLAINT TREATED

- ☐ Asymptomatic with spinal subluxation
- ☐ Asymptomatic without spinal subluxation
- ☐ Neck or back pain without radiation of pain
- ☐ Neck or back pain with radiation of pain
- ☐ Extremity pain
- ☐ Headache
- ☐ Primary neurological disorder
- ☐ Respiratory complaint
- ☐ Cardiovascular complaint
- ☐ Gastrointestinal complaint
- ☐ Genitourinary/reproductive complaint
- ☐ Hemopoietic/immune dysfunction
- ☐ Metabolic/endocrine dysfunction
- ☐ Skin disorder
- ☐ Psychological disorder
- ☐ Other _____

SUPPORTIVE TECHNIQUES OR THERAPIES

- ☐ Ice/cold pack
- ☐ Hot pack/moist heat
- ☐ Infrared or other form of direct heat
- ☐ Orthopedic support/brace
- ☐ Orthotics
- ☐ Ultrasound
- ☐ Diathermy
- ☐ Traction
- ☐ Electrical stimulation
- ☐ Ultraviolet
- ☐ Rehabilitative exercise
- ☐ Other _____

MISCELLANEOUS TECHNIQUES

- ☐ Acupuncture
- ☐ Nutritional counseling/therapy
- ☐ Psychological counseling/therapy
- ☐ Back school/exercise, spinal hygiene instruction
- ☐ Other _____

Practice Model Log

Appendix B

NATIONAL BOARD OF
CHIROPRACTIC
EXAMINERS

Executive Offices: 901 54th Avenue • Greeley, Colorado 80634 • (303) 356-9100

June 26, 1991

Dear Colleague:

As a practicing chiropractor, you are aware of the tremendous importance of the licensing process for the Chiropractic Profession. Presently, the requirements for licensure as a chiropractor are established to protect the public by providing assurance that licensed chiropractors possess the knowledge and skills needed for safe and effective practice. In order to provide adequate protection to the public, and to be fair to applicants for chiropractic licensure, the content of the clinically oriented NBCE examinations should reflect activities performed by licensed chiropractors in their practices.

The National Board of Chiropractic Examiners is currently conducting a Survey of Chiropractic Practice to obtain accurate information about the practices of licensed chiropractors across the United States. You have been selected to participate in a field-trial of this survey instrument as a representative of the doctors practicing in your area. Your responses to the questionnaire will be evaluated, along with the responses of a number of other doctors selected for this important project, to determine if the survey will provide the information necessary to describe the practice of chiropractic in offices throughout the country. Eventually, the NBCE will mail this survey to approximately 5000 practicing chiropractors.

The National Board of Chiropractic Examiners will use this study to compare the content of the current NBCE examinations to the requirements of entry-level practice of chiropractors, and as a basis for future NBCE examinations. However, the benefits to the Chiropractic Profession will be far greater than this simple application. This is the first time that our profession has attempted to define chiropractic practice by using the input from our own professionals in the field.

Congratulations on being selected to participate in this milestone study of Chiropractic. If you have any questions, please call Dr. Mark Christensen or Dr. Paul Townsend of the NBCE at (303) 356-9100. We sincerely appreciate your contribution to this important research study.

Sincerely,

Horace C. Elliott
Executive Director

Field Test Letter

Appendix C

NATIONAL BOARD OF
CHIROPRACTIC
EXAMINERS

Executive Offices: 901 54th Avenue • Greeley, Colorado 80634 • (303) 356-9100

April 20, 1992

Dear Colleague:

You have been selected as a member of a representative sample of chiropractors to participate in a milestone study of chiropractic practice. For the first time in the history of the chiropractic profession, a scientific study has been designed to document the tasks, duties, and professional responsibilities of chiropractic practitioners.

Your participation in this study will consist of completing a questionnaire and returning it to the National Board of Chiropractic Examiners. Results of the study will be used to prepare a comprehensive report describing the chiropractic profession and to document future examination needs.

In order that results of this project reflect the practice of chiropractors across a wide range of practice settings, it is important that you return a completed questionnaire. In a few days, you will be receiving your survey form. We look forward to your response.

Sincerely,

Titus Plomaritis D.C.

Titus Plomaritis, D.C., NBCE President

D. Brent Owens, D.C., Chairman
NBCE Job Analysis Steering Committee

TP/DBO/raa
cc: Dr. Andre Audette, President
Canadian Federation of Chiropractic Regulatory Boards

Dr. Douglas M. Lawson, Chairman
Canadian Chiropractic Examining Board

Pre-Survey Letter

Appendix D

NATIONAL BOARD OF
CHIROPRACTIC
EXAMINERS

Executive Offices: 901 54th Avenue • Greeley, Colorado 80634 • (303) 356-9100

May 20, 1992

Dear Colleague:

As stated in a letter sent to you a few days ago, you have been selected as a representative of chiropractors in your geographic area to participate in a milestone study of chiropractic practice.

Data from the enclosed questionnaire will serve to document what chiropractors across Canada are doing in their practices. Results of the survey will be used to prepare a comprehensive report describing the chiropractic profession and documenting future examination needs. No individual responses will be reported; responses will be reported on a group basis only.

As you are aware, a project of this magnitude will involve several weeks of analyses and reporting after all survey forms are returned to the National Board. Every effort will be made to provide you with a report indicating the results of this survey.

If you have any questions, please feel free to call Paul D. Townsend, D.C., NBCE Chiropractic Consultant, Mark G. Christensen, Ph.D., NBCE Assistant Executive Director and Director of Testing & Evaluation, or me at 1-303-356-9100.

Your response is critical to the success of this important study. Please return your completed survey instrument to the National Board by **June 10, 1992**, in the enclosed self-addressed, postage-paid envelope.

Sincerely,

Horace C. Elliott

Horace C. Elliott
Executive Director

HCE:gc
Enclosures
cc: NBCE Board of Directors

Survey Cover Letter

NATIONAL BOARD OF CHIROPRACTIC EXAMINERS

Appendix E

Survey of Chiropractic Practice

This questionnaire is part of a comprehensive study of chiropractic practice being conducted by the National Board of Chiropractic Examiners.

Please use a soft (No. 1 or No. 2) lead pencil. DO NOT use a ball-point pen, nylon-tip or felt-tip pen, fountain pen, marker, or colored pencil. Be careful to avoid making stray marks on the form.

Most questions have several alternative answers. Choose the answer that best applies to your practice and blacken the circle beside it. To change your answer, erase your first mark completely and then blacken the correct circle.

A few questions ask you to write in information. Print your answer in the space following the question. Be careful to print legibly in the space provided.

Your answers will be kept confidential. Your individual responses to the questions will not be released.

1. What trends or developments during the next decade would be most **beneficial** to the chiropractic profession?

_____

_____

_____

_____

_____

2. What trends or developments during the next decade would be most **detrimental** to the chiropractic profession?

_____

_____

_____

_____

_____

3. Have you ever worked full-time in an occupation other than chiropractic?
   - ○ Yes
   - ○ No

4. Are you currently in active full-time chiropractic practice?
   - ○ Yes
   - ○ No

If you answered "No" to question 4, don't answer any further questions. Simply return the questionnaire in the postage-paid envelope. **It's very important that you return the questionnaire.** Please put it in the mail today.

5. How many hours per week do you practice chiropractic?

   _____ (Hours per week)

6. The final report describing the study will include a list of individuals who responded to this survey. Would you like us to include your name in the list?
   - ○ Yes
   - ○ No

NATIONAL BOARD OF CHIROPRACTIC EXAMINERS
901 54th Avenue
Greeley, Colorado 80634

009920

PLEASE DO NOT MARK IN THIS AREA

DEMOGRAPHIC DATA

In this section you are asked to provide background information that will be summarized to describe the group that completed this questionnaire. No individual responses will be reported.

1. **Sex**
   - ◯ Male
   - ◯ Female

2. **Place of birth**
   - ◯ Canada
   - ◯ U.S.A.
   - ◯ Britain
   - ◯ France
   - ◯ Belgium
   - ◯ Switzerland
   - ◯ Australia
   - ◯ New Zealand
   - ◯ Other _____

3. **Highest level of non-chiropractic education attained:**
   - ◯ High School Diploma
   - ◯ Associate Degree
   - ◯ Baccalaureate Degree
   - ◯ Master's Degree
   - ◯ Doctoral Degree
   - ◯ Other _____

4. **Post-graduate chiropractic specialty board eligibility or certification:**
   - ◯ None/Does not apply
   - ◯ American Chiropractic Board of Sports Physicians
   - ◯ American Board of Chiropractic Orthopedists
   - ◯ American Chiropractic Academy of Neurology
   - ◯ American Chiropractic Board of Radiology
   - ◯ Chiropractic Rehabilitation Association
   - ◯ American Chiropractic Board of Nutrition
   - ◯ American Board of Chiropractic Internists
   - ◯ ICA College on Chiropractic Imaging
   - ◯ ICA College of Thermography
   - ◯ ICA Council on Applied Chiropractic Sciences
   - ◯ Other _____

5. **Institution that conferred Doctor of Chiropractic Degree:**
   - ◯ Anglo-European College of Chiropractic
   - ◯ Canadian Memorial Chiropractic College
   - ◯ Cleveland Chiropractic College, Kansas City
   - ◯ Cleveland Chiropractic College, Los Angeles
   - ◯ Institut Francais de Chiropractie
   - ◯ Life College, School of Chiropractic
   - ◯ Life Chiropractic College, West
   - ◯ Logan College of Chiropractic
   - ◯ Los Angeles College of Chiropractic
   - ◯ National College of Chiropractic
   - ◯ New York Chiropractic College
   - ◯ Northwestern College of Chiropractic
   - ◯ Palmer College of Chiropractic
   - ◯ Palmer College of Chiropractic, West
   - ◯ Parker College of Chiropractic
   - ◯ Pennsylvania College of Straight Chiropractic
   - ◯ Phillip Institute of Technology, School of Chiropractic
   - ◯ Sherman College of Straight Chiropractic
   - ◯ Southern California College of Chiropractic
   - ◯ Sydney College of Chiropractic
   - ◯ Texas Chiropractic College
   - ◯ Western States Chiropractic College
   - ◯ Other _____

WORK ENVIRONMENT

1. **Which of the following best describes your position in the office where you work?**
   - ○ Individual practitioner/only doctor in office
   - ○ One of two or more doctors in office
   - ○ Junior associate or examining doctor
   - ○ Other _____

2. **Do you practice in more than one office location?**
   - ○ Yes
   - ○ No

3. **Do you delegate some of your patient care, such as case history taking, the taking or developing of X-rays, or the administration of therapy, to a chiropractic assistant?**
   - ○ Yes
   - ○ No

4. **Do you ever deliver chiropractic care outside an office setting, such as in a patient's home?**
   - ○ Yes
   - ○ No

5. **Do you have staff privileges at a hospital?**
   - ○ Yes
   - ○ No

6. **Have you received patient referrals from medical practitioners in the past two years?**
   - ○ Yes
   - ○ No

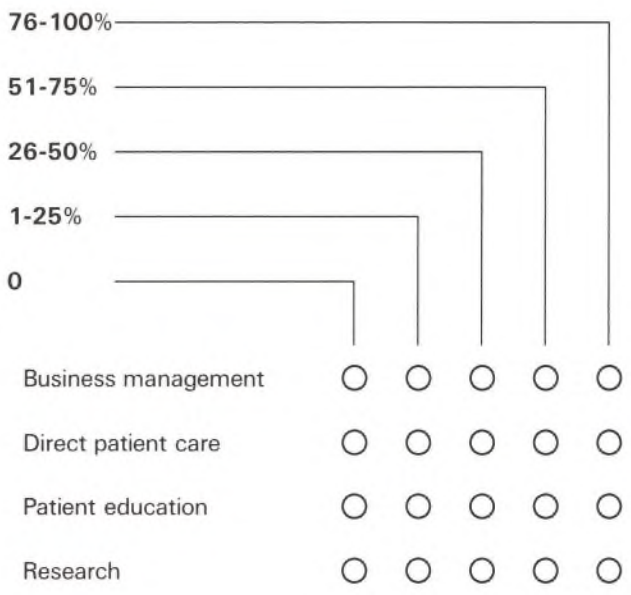
EXPERIENCE AND ORIENTATION

1. **How long have you been practicing in the state in which you are currently located?**
   - ○ less than 2 years
   - ○ 2-4 years
   - ○ 5-15 years
   - ○ more than 15 years

2. **How long have you been in practice altogether, including your current state and other states or countries?**
   - ○ less than 2 years
   - ○ 2-4 years
   - ○ 5-15 years
   - ○ more than 15 years

3. **What kind of clinical orientation did you receive in your first field practice setting?**
   - ○ No formal orientation
   - ○ A preceptorship/field internship
   - ○ An associateship
   - ○ A state-mandated training program
   - ○ Other _____

4. **Approximately what percentage of your time is spent on each of the following functions during a typical week?**



TYPES OF PATIENTS

For every 100 patients that you see in your practice, how many of these patients are from each of the following sex, age, ethnic, and occupational categories?

4 = MOST/ALL (76-100%)
3 = MORE THAN HALF (51-75%)
2 = HALF OR LESS (26-50%)
1 = FEW/SOME (1-25%)
0 = NONE (0)

		0	1	2	3	4
SEX	• MALE	○	○	○	○	○
	• FEMALE	○	○	○	○	○
AGE	• 17 or younger	○	○	○	○	○
	• 18 to 30	○	○	○	○	○
	• 31 to 50	○	○	○	○	○
	• 51 to 64	○	○	○	○	○
	• 65 or older	○	○	○	○	○
PLACE OF BIRTH	• Canada	○	○	○	○	○
	• U.S.A.	○	○	○	○	○
	• Britain	○	○	○	○	○
	• France	○	○	○	○	○
	• Belgium	○	○	○	○	○
	• Switzerland	○	○	○	○	○
	• Australia	○	○	○	○	○
	• New Zealand	○	○	○	○	○
	• Other _____	○	○	○	○	○
OCCUPATION	• Executive/Professional	○	○	○	○	○
	• White collar/Secretarial	○	○	○	○	○
	• Professional/Amateur athlete	○	○	○	○	○
	• Tradesman/Skilled Labor	○	○	○	○	○
	• Unskilled Labor	○	○	○	○	○
	• Homemaker	○	○	○	○	○
	• Student	○	○	○	○	○
	• Retired or other	○	○	○	○	○

TYPES OF CONDITIONS

During the past two years in your practice, how often have you seen patients with the following presenting or concurrent conditions?

4 = ROUTINELY (Daily)
3 = OFTEN (1 or 2 per week)
2 = SOMETIMES (1 or 2 per month)
1 = RARELY (1 or 2 per year)
0 = NEVER

	0	1	2	3	4
ARTICULAR/JOINT					
• spinal subluxation/joint dysfunction	○	○	○	○	○
• extremity subluxation/joint dysfunction	○	○	○	○	○
• sprain or dislocation of any joint	○	○	○	○	○
• vertebral facet syndrome	○	○	○	○	○
• intervertebral disc syndrome	○	○	○	○	○
• thoracic outlet syndrome	○	○	○	○	○
• hyperlordosis of cervical or lumbar spine	○	○	○	○	○
• kyphosis of thoracic spine	○	○	○	○	○
• aseptic necrosis or epiphysitis	○	○	○	○	○
• scoliosis	○	○	○	○	○
• congenital/developmental anomaly	○	○	○	○	○
• osteoarthritis/degenerative joint disease	○	○	○	○	○
• systemic/rheumatoid arthritis or gout	○	○	○	○	○
• bacterial infection of joint	○	○	○	○	○
• bursitis or synovitis	○	○	○	○	○
• carpal or tarsal tunnel syndrome	○	○	○	○	○
• TMJ syndrome	○	○	○	○	○
• joint tumor or neoplasm	○	○	○	○	○
• spinal canal stenosis	○	○	○	○	○
NEUROLOGICAL					
• headaches	○	○	○	○	○
• peripheral neuritis or neuralgia	○	○	○	○	○
• ALS, multiple sclerosis or Parkinson's	○	○	○	○	○
• tearing or rupture of nerve/plexus	○	○	○	○	○
• stroke or cerebrovascular condition	○	○	○	○	○
• vertebrobasilar artery insufficiency	○	○	○	○	○
• cranial nerve disorder	○	○	○	○	○
• radiculitis or radiculopathy	○	○	○	○	○
• loss of equilibrium	○	○	○	○	○
• brain or spinal cord tumor	○	○	○	○	○

(During the **past two years**)

4 = ROUTINELY (Daily)
3 = OFTEN (1 or 2 per week)
2 = SOMETIMES (1 or 2 per month)
1 = RARELY (1 or 2 per year)
0 = NEVER

	0	1	2	3	4
SKELETAL					
• fracture	○	○	○	○	○
• osteoporosis/osteomalacia	○	○	○	○	○
• congenital/developmental anomaly	○	○	○	○	○
• endocrine or metabolic bone disorder	○	○	○	○	○
• bone tumor	○	○	○	○	○
MUSCULAR					
• muscular strain/tear	○	○	○	○	○
• tendinitis/tenosynovitis	○	○	○	○	○
• muscular dystrophy	○	○	○	○	○
• muscular atrophy	○	○	○	○	○
• muscle tumor	○	○	○	○	○
CARDIOVASCULAR					
• high or low blood pressure	○	○	○	○	○
• angina or myocardial infarction	○	○	○	○	○
• arterial aneurysm	○	○	○	○	○
• peripheral artery or vein disorder	○	○	○	○	○
• murmur or rhythm irregularity	○	○	○	○	○
• congenital anomaly	○	○	○	○	○
RESPIRATORY					
• viral or bacterial infection	○	○	○	○	○
• asthma, emphysema or COPD	○	○	○	○	○
• occupational or environmental disorder	○	○	○	○	○
• atelectasis or pneumothorax	○	○	○	○	○
• tumor of lung or respiratory passages	○	○	○	○	○
INTEGUMENT					
• acne, dermatitis or psoriasis	○	○	○	○	○
• bacterial or fungal infection	○	○	○	○	○
• herpes simplex or zoster	○	○	○	○	○
• pigment disorders	○	○	○	○	○
• skin cancer	○	○	○	○	○

(During the **past two years**)

4 = ROUTINELY (Daily)
3 = OFTEN (1 or 2 per week)
2 = SOMETIMES (1 or 2 per month)
1 = RARELY (1 or 2 per year)
0 = NEVER

		0	1	2	3	4
GASTROINTESTINAL	• bacterial or viral infection	○	○	○	○	○
	• appendicitis, cholecystitis or pancreatitis	○	○	○	○	○
	• ulcer of stomach, intestine or colon	○	○	○	○	○
	• hiatus or inguinal hernia	○	○	○	○	○
	• colitis or diverticulitis	○	○	○	○	○
	• hemorrhoids	○	○	○	○	○
	• tumor of gastrointestinal tract	○	○	○	○	○
RENAL/UROLOGICAL	• infection of kidney or urinary tract	○	○	○	○	○
	• kidney stones	○	○	○	○	○
	• chronic kidney disease or failure	○	○	○	○	○
	• tumor of the kidney or bladder	○	○	○	○	○
MALE REPRODUCTIVE	• male infertility or impotency	○	○	○	○	○
	• prostate disorder	○	○	○	○	○
	• congenital anomaly	○	○	○	○	○
	• tumor of reproductive system	○	○	○	○	○
FEMALE REPRODUCTIVE OR BREAST	• female infertility	○	○	○	○	○
	• pregnancy	○	○	○	○	○
	• menstrual disorder	○	○	○	○	○
	• non-cancerous disorder of breast	○	○	○	○	○
	• tumor of breast or reproductive system	○	○	○	○	○
HEMATOLOGICAL/ LYMPHATIC	• anemia	○	○	○	○	○
	• immunological disorder	○	○	○	○	○
	• hereditary disorder	○	○	○	○	○
	• polycythemia	○	○	○	○	○
	• cancer of the marrow or lymphatic system	○	○	○	○	○

(During the **past two years**)

4 = ROUTINELY (Daily)
3 = OFTEN (1 or 2 per week)
2 = SOMETIMES (1 or 2 per month)
1 = RARELY (1 or 2 per year)
0 = NEVER

	0	1	2	3	4
ENDOCRINE/METABOLIC					
• obesity	○	○	○	○	○
• thyroid or parathyroid disorder	○	○	○	○	○
• adrenal disorder	○	○	○	○	○
• pituitary disorder	○	○	○	○	○
• thymus or pineal disorder	○	○	○	○	○
• diabetes	○	○	○	○	○
• endocrine tumor	○	○	○	○	○
CHILDHOOD DISORDERS					
• upper respiratory or ear infection	○	○	○	○	○
• measles/German measles	○	○	○	○	○
• mumps	○	○	○	○	○
• chickenpox	○	○	○	○	○
• whooping cough	○	○	○	○	○
• parasitic	○	○	○	○	○
VENEREAL					
• herpes II	○	○	○	○	○
• gonorrhea	○	○	○	○	○
• chlamydia	○	○	○	○	○
• venereal warts	○	○	○	○	○
• syphilis	○	○	○	○	○
EENT					
• eye or vision disorder	○	○	○	○	○
• ear or hearing disorder	○	○	○	○	○
• disorder of nose or sense of smell	○	○	○	○	○
• disorder of throat or larynx	○	○	○	○	○
• tumor of eye, ear, nose or throat	○	○	○	○	○
MISCELLANEOUS					
• allergies	○	○	○	○	○
• nutritional disorders	○	○	○	○	○
• eating disorders	○	○	○	○	○
• psychological disorders	○	○	○	○	○
• AIDS-related complex	○	○	○	○	○

ACTIVITIES PERFORMED

INSTRUCTIONS: This section contains a list of activities that chiropractors may perform in their practices. Some of these activities may not apply to your practice. Please respond to the statements in terms of what you are <u>now</u> doing or have been doing over the **past two years** in your practice.

<u>Using the rating scale</u>

For each item in this inventory, you are asked to make <u>two</u> judgments using the **FREQUENCY** and **RISK FACTOR** rating scales presented below.

FREQUENCY: How often do you perform the activity in a **typical series of 100 patients** or in a group of the type of patients specified?

0 Never (does not apply to my practice)
1 Rarely (1-25%)
2 Sometimes (26-50%)
3 Frequently (51-75%)
4 Routinely (76-100%)

RISK FACTOR: In your opinion, what would be the risk factor to public health or patient safety of **poor performance** or **omission** of the activity by a chiropractor?

0 No risk
1 Little risk
2 Some risk
3 Significant risk
4 Severe risk

0 Never (does not apply)
1 Rarely (1-25%)
2 Sometimes (26-50%)
3 Frequently (51-75%)
4 Routinely (76-100%)

0 No risk
1 Little risk
2 Some risk
3 Significant risk
4 Severe risk

EXAMPLES	FREQUENCY					RISK FACTOR				
	0	1	2	3	4	0	1	2	3	4
1. Order or perform an electrocardiogram as part of an initial or routine physical examination.	●	○	○	○	○	○	●	○	○	○
2. Order an electrocardiogram or refer a patient with a suspected heart problem to a cardiologist.	○	○	○	○	●	○	○	○	○	●
3. Determine the appropriate placements of chest leads for an EKG.	●	○	○	○	○	●	○	○	○	○
4. Interpret an EKG tracing.	○	●	○	○	○	○	○	○	●	○

<u>NOTE</u>: You may perform a procedure rarely, but the risk factor may be significant if performed poorly or omitted. Conversely, you may perform a procedure frequently, but omission of the activity may not necessarily present a significant risk to public health or patient safety.

These examples are hypothetical and are not intended to influence your rating of the procedures.

ACTIVITIES

Using the rating scale

For each item in this inventory, you are asked to make two judgments using the rating scales presented. In the column labeled **"FREQUENCY,"** use the scale provided to indicate how often you perform the activity in a **typical series of 100 patients** or in a group of the **type of patients specified.** In the column labeled **"RISK FACTOR,"** use the scale to provide your opinion of what would be the risk to public health or patient safety of **poor performance** or **omission** of the activity by a chiropractor.

FREQUENCY	RISK FACTOR
0 Never (does not apply)	0 No risk
1 Rarely (1-25%)	1 Little risk
2 Sometimes (26-50%)	2 Some risk
3 Frequently (51-75%)	3 Significant risk
4 Routinely (76-100%)	4 Severe risk

CASE HISTORY	FREQUENCY					RISK FACTOR				
	0	1	2	3	4	0	1	2	3	4
1. Take an initial case history from a new patient.	○	○	○	○	○	○	○	○	○	○
2. Identify the nature of a patient's condition using the information from the case history.	○	○	○	○	○	○	○	○	○	○
3. Perform a focused case history in order to determine what additional examination procedures or tests may be needed.	○	○	○	○	○	○	○	○	○	○
4. Take S.O.A.P. notes or case progress notes on subsequent patient visits.	○	○	○	○	○	○	○	○	○	○
5. Determine the appropriate technique or case management procedure using the information from the S.O.A.P. notes or case progress notes.	○	○	○	○	○	○	○	○	○	○
6. Update case history for a patient whose condition has changed or who presents with a new condition.	○	○	○	○	○	○	○	○	○	○

PHYSICAL EXAMINATION	FREQUENCY					RISK FACTOR				
	0	1	2	3	4	0	1	2	3	4
7. Perform a physical examination on a new patient.	○	○	○	○	○	○	○	○	○	○
8. Assess the patient's general state of health using the information from the physical examination.	○	○	○	○	○	○	○	○	○	○
9. Perform a regional physical examination to futher define the nature of the patient's presenting complaint, or to determine what, if any, further testing procedures may be indicated.	○	○	○	○	○	○	○	○	○	○
10. Update certain physical examination procedures periodically or when patient's condition changes.	○	○	○	○	○	○	○	○	○	○

0 Never (does not apply)
1 Rarely (1-25%)
2 Sometimes (26-50%)
3 Frequently (51-75%)
4 Routinely (76-100%)

0 No risk
1 Little risk
2 Some risk
3 Significant risk
4 Severe risk

NMS EXAMINATION	FREQUENCY					RISK FACTOR				
	0	1	2	3	4	0	1	2	3	4
11. Perform a general orthopedic and/or neurological examination on a new patient.	○	○	○	○	○	○	○	○	○	○
12. Perform a focused orthopedic and/or neurological examination based on the findings from the orthopedic and/or neurological survey.	○	○	○	○	○	○	○	○	○	○
13. Determine the nature of a patient's condition using information from the orthopedic and/or neurological examination.	○	○	○	○	○	○	○	○	○	○
14. Determine what additional laboratory, X-ray, special study, and/or referral may be indicated using information from the orthopedic and/or neurological examination.	○	○	○	○	○	○	○	○	○	○
15. Update appropriate orthopedic and/or neurological tests periodically or as patient's condition changes.	○	○	○	○	○	○	○	○	○	○
X-RAY EXAMINATION	FREQUENCY					RISK FACTOR				
	0	1	2	3	4	0	1	2	3	4
16. Perform an X-ray examination on new patients, and develop X-rays, either manually or with automatic processor.	○	○	○	○	○	○	○	○	○	○
17. Determine the presence of pathology, fracture, dislocations or other significant findings using information from an X-ray examination.	○	○	○	○	○	○	○	○	○	○
18. Determine areas of instability or dynamic joint dysfunction using information from a stress X-ray.	○	○	○	○	○	○	○	○	○	○
19. Determine the possible presence of a subluxation or a spinal listing using findings from an X-ray examination.	○	○	○	○	○	○	○	○	○	○
20. Update the X-ray examination or perform new X-rays on a patient whose condition has changed or who has a new condition.	○	○	○	○	○	○	○	○	○	○
LABORATORY AND SPECIAL STUDIES	FREQUENCY					RISK FACTOR				
	0	1	2	3	4	0	1	2	3	4
21. Draw blood, collect urine, or perform laboratory or other specialized procedures in your office.	○	○	○	○	○	○	○	○	○	○
22. Order laboratory tests from hospital or private laboratory.	○	○	○	○	○	○	○	○	○	○
23. Refer patients for MRI, CT scan, EKG or other specialized procedure.	○	○	○	○	○	○	○	○	○	○
24. Confirm a diagnosis or rule out health-threatening conditions using information from laboratory or specialized studies.	○	○	○	○	○	○	○	○	○	○
25. Augment history, examination or X-ray findings using information from laboratory or specialized studies.	○	○	○	○	○	○	○	○	○	○

0 Never (does not apply)
1 Rarely (1-25%)
2 Sometimes (26-50%)
3 Frequently (51-75%)
4 Routinely (76-100%)

0 No risk
1 Little risk
2 Some risk
3 Significant risk
4 Severe risk

DIAGNOSIS	FREQUENCY 0	1	2	3	4	RISK FACTOR 0	1	2	3	4
26. Relate problems identified in the history and examination findings to a pathologic, pathophysiologic, or psychopathologic process.	○	○	○	○	○	○	○	○	○	○
27. Distinguish between life- or health-threatening conditions and less urgent conditions using information from the history and examination findings.	○	○	○	○	○	○	○	○	○	○
28. Predict the effectiveness of chiropractic care for the individual patient using information from the history and examination findings.	○	○	○	○	○	○	○	○	○	○
29. Refer patients to other health care practitioners based on information from the history and examination findings.	○	○	○	○	○	○	○	○	○	○
30. Arrive at a diagnosis or clinical impression on the basis of history and examination findings.	○	○	○	○	○	○	○	○	○	○
CHIROPRACTIC TECHNIQUE	FREQUENCY 0	1	2	3	4	RISK FACTOR 0	1	2	3	4
31. Perform specific chiropractic examination procedures on patients with spinal or extra-spinal joint conditions.	○	○	○	○	○	○	○	○	○	○
32. Utilize instruments unique to chiropractic or primarily in the chiropractic domain as part of the patient examination.	○	○	○	○	○	○	○	○	○	○
33. Determine the appropriate chiropractic case management or technique using information from a chiropractic examination.	○	○	○	○	○	○	○	○	○	○
34. Perform chiropractic adjustive techniques.	○	○	○	○	○	○	○	○	○	○
35. Update chiropractic examination procedures on subsequent visits to determine appropriate use of technique or case management.	○	○	○	○	○	○	○	○	○	○
SUPPORTIVE TECHNIQUE	FREQUENCY 0	1	2	3	4	RISK FACTOR 0	1	2	3	4
36. Evaluate the patient's condition to determine if procedures other than adjustive techniques may be indicated.	○	○	○	○	○	○	○	○	○	○
37. Determine indications or contraindications for the use of a supportive technique.	○	○	○	○	○	○	○	○	○	○
38. Perform treatment procedures other than adjustive techniques in the management of patient care.	○	○	○	○	○	○	○	○	○	○
39. Refer patients to a physical therapist, massage therapist, nutritionist or other health care practitioner based on patient's condition.	○	○	○	○	○	○	○	○	○	○
40. Monitor the effectiveness of non-adjustive techniques or therapeutic procedures.	○	○	○	○	○	○	○	○	○	○

0 Never (does not apply)
1 Rarely (1-25%)
2 Sometimes (26-50%)
3 Frequently (51-75%)
4 Routinely (76-100%)

0 No risk
1 Little risk
2 Some risk
3 Significant risk
4 Severe risk

CASE MANAGEMENT	FREQUENCY					RISK FACTOR				
	0	1	2	3	4	0	1	2	3	4
41. Discuss alternative courses of action with patient based on assessment of patient's condition.	○	○	○	○	○	○	○	○	○	○
42. Recommend and/or arrange for services of other health professionals when patient's condition warrants.	○	○	○	○	○	○	○	○	○	○
43. Modify or revise case management as patient's condition improves or fails to improve.	○	○	○	○	○	○	○	○	○	○
44. Encourage patient to make appropriate changes in habits or lifestyle that will result in prevention of reoccurrences or improvement of health.	○	○	○	○	○	○	○	○	○	○
45. Maintain written record of problem(s), goals, intervention strategies, and case progress.	○	○	○	○	○	○	○	○	○	○

OTHER ESSENTIAL ACTIVITIES

If you feel that there are additional procedures that you use in your practice which are absolutely essential to the health or safety of your patients, please describe these procedures in the space provided below.

TREATMENT PROCEDURES

Please indicate the primary technique approach that you use in your practice.

- ○ Upper cervical
- ○ Full spine
- ○ Other _____

Please indicate whether or not you have used the following adjustive techniques in your practice during the past two years.

YES	NO	ADJUSTIVE TECHNIQUE
○	○	Activator
○	○	Applied kinesiology
○	○	Barge
○	○	Cox/Flexion-Distraction
○	○	Cranial
○	○	Diversified
○	○	Gonstead
○	○	Grostic
○	○	Life upper cervical
○	○	Logan Basic
○	○	Meric
○	○	NIMMO/Tonus receptor
○	○	NUCCA
○	○	Palmer upper cervical/HIO
○	○	Pettibon
○	○	Pierce-Stillwagon
○	○	SOT
○	○	Thompson
○	○	Toftness
○	○	Other _____

Please indicate whether or not you have used the following non-adjustive supportive techniques in your practice during the past two years.

YES	NO	NON-ADJUSTIVE TECHNIQUE
○	○	Acupressure or meridian therapy
○	○	Acupuncture
○	○	Biofeedback
○	○	Bedrest
○	○	Bracing with lumbar support, cervical collar, etc.
○	○	Casting or athletic taping/strapping
○	○	Corrective or therapeutic exercise
○	○	Diathermy - shortwave or microwave
○	○	Direct current, electrodiagnosis or iontophoresis
○	○	Electrical stimulation - TENS, high-volt, low-volt, EMS
○	○	Foot orthotics or heel lifts
○	○	Homeopathic remedies
○	○	Hot pack/moist heat
○	○	Ice pack/cryotherapy
○	○	Infrared - baker, heat lamp or hot pad
○	○	Interferential current
○	○	Massage therapy
○	○	Nutritional counseling, therapy or supplements
○	○	Paraffin bath
○	○	Traction
○	○	Ultrasound
○	○	Ultraviolet therapy
○	○	Vibratory therapy
○	○	Whirlpool or hydrotherapy
○	○	Other _____

THANK YOU very much for your contribution to this important research study. If you wish to make any comments or suggestions, please use the space below.

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Appendix F
Listing of Survey Participants

The names of those job analysis survey participants who authorized their inclusion in this report appear below. A complete listing of participants is on file at NBCE headquarters.

ALBERTA
ALAN E ALTO D C
THOMAS E AMAOLO D C
ANDERS ANDERSON D C
ROBERT S ANNIS D C
RONALD L ARMSTRONG D C
DANA K BALL D C
JANET M BECKHUSON D C
DENNIS G BECKLUND D C
JOHN G BICKERT D C
PERCY W BOYKO D C
DONALD J BRADLEY D C
KRISTINE A BRIGHT D C
DAVID L BROSZ D C
WILLIAM S BURNS D C
KENNETH K BUTLER D C
C DAN CAMPBELL D C
PATRICIA CHAMBERS D C
FREDERICK CHAN D C
GLENN S CHIDLOW D C
ALAN M CHONG D C
JAMES R CHURCH D C
DONALD S COOK D C
THOMAS J COOPER D C
ROBERT E CORBETT D C
ANDRE L COURTEAU D C
DARYL R CROXALL D C
KEVIN K D'AMICO D C
LESLIE J DAVIDSON D C
ROBERT G DOBIE D C
JOHN D EATON D C
RICHARD W FARNALLS D C
WILFRED B FOORD D C
JUDY A FORRESTER D C
AUBREY J FRIEDENBERG D C
BRIAN A M GALAS D C
TANIS GEHRKE D C
RAY G GRAHAM D C
COLLEEN M GREER D C
BRIAN D GUSHATY D C
DOUGLAS R HALL D C
KEITH G HARPER D C
GEORGE R HERMAN D C
JOHN F HUNTER D C
WALLACE A JANS D C
HEINZ P JEPP D C
LANDELIN J JOHNSON D C
A CAMPBELL JONES D C
ROGER G JONES D C
RICHARD S KANE D C
GREGORY N KAWCHUK D C
JAN R KLESKO D C
THOMAS J KORSH D C
IVAR J KRISTIANSON D C
JOHN S KUCHERAN D C
LARRY C LAPOINTE D C
RONALD H LATCH D C
STANLEY B C LEE D C
RYAN A LEES D C
GEORGE M LISCOMBE D C
THOMAS J LISCOMBE D C
JOHN H LOVE D C
PHILIP E LYALL D C
SEEM L MA D C
JANET E MAJOR D C
LOREN MATHES D C
D COURT MCAULEY D C
MARK MCCULLOCH D C
RODERICK B MCDOUGALL D C
CAMERON J MCGINNIS D C
KEVIN D MCKENZIE D C
DWIGHT M MCLELLAND D C
DANIEL MIGLIARESE D C
J RICHARD MOZELL D C
FREDERICK R MURRAY D C
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HUBERT NG D C
L DREW OLIPHANT D C
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BRUCE W PEDERSEN D C
DAVID E PETERSON D C
ROSS J PINDER D C
C ALAN POYTRESS D C
VIOLA F PRESTON D C
TERRENCE D PROCYSHEN D C
ANNE E RAWLEK D C
DOUGLAS O REID D C
WAYNE A ROWE D C
ELLIS E SABO D C
EDWARD W SANDS D C
MURRAY SCHNEIDER D C
DEBORAH A SCHREINER D C
KYU S SEUNG D C
LESLIE D SHAW D C
JAMES H F SIE D C

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JACK CHIN D C
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B THOMAS COUTTS D C
BARRY J CURRAN D C
STEVEN R DOW D C
LINDA A DRAKE D C
GARTH T EDGAR D C
JAMES K ELDER D C
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RON P GIESBRECHT D C
R DALE GREENWOOD D C
PETER L GROVE D C
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PAUL G HOLDSWORTH D C
RICHARD D HUNTER D C
SHIVRAJ S JOHAL D C
RUSSELL M KANG D C
BRAD KARSE D C
GARY E KEMBLE D C
KENNETH F KICIA D C
LARRY G KOZUBACK D C
RICHARD A KRISTIANSON D C
J DEREK LAURILLARD D C
BRIAN D LITTLEJOHN D C
WA KIN LO D C
ARTHUR A LOPES D C
RICHARD LUTZ D C
DAVID A MACINTOSH D C
GORDON W MACLEOD D C
KENNETH V MARSHALL D C
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JEFFEREY A QUON D C
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GORDON TAYLOR D C
PETER TITCHENER D C
ROBERT D TURNER D C
KEVIN L UNDERWOOD D C
ERNIE VON SCHILLING D C
FIONA P WALKER-WEETMAN D C
STEVEN J WELLER D C
BRIAN S WHITEHEAD D C
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KRISJAN M GUSTAVSON D C
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HOWARD LESLIE D C
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G ROBERT THARP D C

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ROBERT M WINGFIELD D C

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ROD J BELYEA D C

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AYLMER BAKER D C
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GUYLAIN BELAND D C
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PIERRE BERNIER D C
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FRANCOIS BOLDUC D C
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MARC CHEVREFILS D C
ROBERT J COULOMBE D C
RICHARD CYR D C
RENEE DALLAIRE D C
ROBERT DAVID D C
PIERRE M DELORME D C
PIERRE DERAICHE D C
ANDRE DUMARAIX D C
MIREILLE DURANLEAU D C
JEAN-LUC FLIPO D C
JEAN-PIERRE GAGNON D C
EDWARD GATES D C
CHANTAL GELINAS D C
CLAIRE GENDRON D C
ALAIN GERARD D C
CLAUDE GIRARD D C
ANDRE-MARIE GONTHIER D C
PIERRE GUILLOT D C
DENIS HENRY D C
ANDRE HOULE D C
DENIS JEAN D C
STEPHANE JULIEN D C
SAT JIT KAUR KHALSA D C
ANDRE L'HEUREUX D C
RENE M LABROSSE D C
JACQUES LACOURSIERE D C
ANDRE LAPLANTE D C
JACQUES LAROCHELLE D C
GEORGES LEPAGE D C
ALAIN MAILLE D C
PIERRE MALOUIN D C
GUY MARTEL D C
PAUL MARTIN D C
CLAUDE MASSICOTTE D C
RICHARD MCCARTHY D C
PIERRE MOREAU D C
LOUIS-PHILIPPE MORIN D C
MICHELE MUNNICH D C
JOAN O'MALLEY D C
PIERRE PAQUIN D C
ANDRE C PARIS D C
YVAN PLAMONDON D C
CHANTAL RHEAULT D C
MICHEL ROY D C
GIOVANNI SCALIA D C
ROBERT SHADOWITZ D C
KENNETH SMITH D C
NICOLE ST LAURENT D C
ALLAN SVERDLOVE D C
ANDRE THEORET D C
MARC THIBAULT D C
ROBERT VENDITOLLI D C
NORMAND VOISARD D C

SASKATCHEWAN
G HUGH ARMSTRONG D C
NEIL C BARBER D C
SHARON J BARBER D C
DONALD T BRAMHAM D C
JULIE E BRANDT D C
BLAINE L BROKER D C
DAVID R BUETTNER D C
STEVEN H BURNS D C
JOHN D CASSIDY D C
GORDON D CHADWICK D C
GARY W CLARK D C
JOHN T CLARK D C
RANDY L CLARK D C
RONALD J DELAIRE D C
EDWARD DOWHANIUK D C
J KEN GOLDIE D C
BRIAN G GRASSICK D C
ALEXANDER GRIER D C
RICHARD H GROLMUS D C
L R W HAMILTON D C
SCOTT A HARDER D C
L KEVIN HENBID D C
JAMES D HOWLETT D C
WILLIAM A JOHNSTONE D C
ROBERT A JOYCE D C
BLAIR JURGENS D C
ROBERT G KITCHEN D C
MARK G LABRECQUE D C
GARTH LAPLANTE D C
JIM R LESKUN D C
CONSTANT LEVESQUE D C
STAN LEWCHUK D C
ALAN T LOVELL D C
MICHAEL R MAJERAN D C
DARREN D MARCOTTE D C
J RUSSELL MCKAY D C
JAMES MCKEE D C
GRAEME R MCMASTER D C
DAVID P MILLAR D C
JOHN MINDIUK D C
MAURICE I MOFFATT D C
DWIGHT W D NELSON D C
LORNEN J NISCHUK D C
STEWART PALMER D C
YVONNE M PEARSON D C
MICHAEL R ROSTOTSKI JR D C
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CHERYL L ROUNDY D C
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MICHAEL J SAX D C
ALOYSIUS H SCHULTE D C
D MURRAY SHADBOLT D C
ROBERT A SIMPSON D C
WILLIAM M SMITH D C
ARDEN P STRUDWICK D C
FRED A STRUKOFF D C
REUBEN TEICHROEB D C
BRIAN H THOMPSON D C
DWIGHT VALLEE D C
BRADLEY M WADDELL D C
GARRY G YEOMANS D C
DONALD ZEMEN D C

Appendix G
Glossary of Terms or References

activator technique
A system of adjustment using a hand held, manually assisted, spring activated device which delivers a controlled thrust.

acupressure/Meridian therapy
The practice of applying digital pressure to stimulate certain sites on the skin to affect distant functional mechanisms of the body. This therapy is based on the belief that these sites are organized along meridians which carry the life force that innervates the body.

acupuncture
The practice of insertion of needles into specific exterior body locations to relieve pain, to induce surgical anesthesia, and for therapeutic purposes.

adjustment
A forceful thrust which is meticulously controlled as to its direction, amount of force employed, and the quickness with which it is applied.

adrenal disorder
A dysfunction of the adrenal gland which is located near the kidney.

AMA
American Medical Association

amyotropic lateral sclerosis (ALS), multiple sclerosis or Parkinson's disease
Nervous system disorders characterized by demyelinization and degeneration of neural tissue.

angina pectoris
A condition marked by recurrent pain in the chest or left arm, caused by an inadequate blood supply to the heart muscle.

APA
American Psychological Association

applied kinesiology
The dynamics of smooth and striated muscle and the impact of these tissues on body structure, healing processes, and disease processes. In particular, applied kinesiology focuses on the identification and correction of proprioceptive dysfunction of ligaments and of the muscle spindle cells and golgi tendons. In addition, applied kinesiology is concerned with the vascular, lymphatic, and other systems supporting proper muscle dynamics.

arterial aneurysm
An enlargement of one aspect of an artery caused by weakness in the arterial wall.

aseptic necrosis
A condition which is not a specific disease entity but caused by disruption in normal circulation to the involved bone. It can result in pain, loss of bone density, bone collapse or fracture. Some possible areas of involvement include the hip, shoulder, elbow, wrist, knee, or heel.

associateship
A practice arrangement between two or more chiropractors. Commonly entered into by some recent chiropractic college graduates in order to gain clinical practice experience.

asthma
A condition marked by recurrent attacks of wheezing due to spasmodic contraction of the bronchi in the lungs.

atelectasis or pneumothorax
Collapse of a part or the whole of the lungs due to absence of gas in the lung cavity or the presence of

air or gas in the pleural cavity located between the lung and chest wall.

Barge technique
A system of x-ray analysis, palpation, and adjusting procedures directed at correcting vertebral misalignments involving a shifting of the nucleus pulposus.

B.E.S.T. Technique
Bio-Energetic Synchronization Technique.

biofeedback
A training technique designed to enable an individual to gain some element of control over autonomic body functions. The technique is based on the learning principle that a desired response is learned when received information (feedback) indicates that a specific thought complex or action has produced the desired response.

bursitis or synovitis
Inflammation of the bursa or synovial membrane. Bursitis is occasionally accompanied by a calcific deposit in the underlying supraspinatus tendon.

carpal or tarsal tunnel syndrome
Peripheral nerve compression syndromes; carpal tunnel syndrome affects the median nerve in the carpal tunnel of the wrists; and tarsal tunnel syndrome affects the posterior tibial nerve or plantar nerves in the tarsal tunnel of the foot.

CCA
Canadian Chiropractic Association

CCE
Council on Chiropractic Education

CCEB
Canadian Chiropractic Examining Board

CCR
Consortium for Chiropractic Research

cervical spine
The first seven vertebra, the first of which articulates with the base of the cranium, and the seventh articulates with the uppermost vertebra of the thorax.

certification
A voluntary program that typically recognizes individuals that have the education or training beyond the basic level of competency necessary to practice in a profession.

chiropractic
Chiropractic is a branch of the healing arts which is concerned with human health and disease processes. Doctors of chiropractic are physicians who consider man as an integrated being, but give special attention to spinal mechanics, musculoskeletal, neurological, vascular, nutritional, and environmental relationships.

chlamydia
A sexually transmitted disease caused by the bacteria of the family chlamydiaceae.

CMCC
Canadian Memorial Chiropractic College

colitis or diverticulitis
Inflammation of the colon or the diverticulum.

concurrent condition
A bodily condition which may include illness, malfunction, or disease for which the patient is not reporting to the chiropractor for care. The condition is called "concurrent" because it is present with another condition for which the person is seeking care.

congenital/developmental anomaly
An abnormality that is present at birth or appears in later development.

content-related evidence of validity
Evidence that shows the extent to which the content domain of a test is appropriate relative to its intended purpose. Such evidence is used to establish that the test includes a representative or critical sample of the relevant content domain and that it excludes content outside that domain.

COPD
Chronic Obstructive Pulmonary Disease. Generalized airway obstruction, particularly of small airways, associated with combinations of chronic bronchitis, asthma, and emphysema.

correlation coefficient
An index which can range from -1.00 through 0 to +1.00, indicating the extent that two variables relate.

Cox/Flexion-Distraction technique
A system of procedures using distraction, or doctor-controlled tractive forces applied to a specific level of the spine with or without articular facet adjustment.

cranial nerve disorder
A condition affecting one or more of the twelve pairs of cranial nerves.

cranial technique
A technique to correct immobilities and asymmetries of the cranial bones.

cryotherapy
The use of cold as a treatment modality.

CT scan
Computed tomograms combine the use of computers with advances in X-ray technology to produce sectional images in almost any anatomical plane of the body.

D.C.
Doctor of Chiropractic

Delphi study
A method of study originally developed by the RAND Corporation to arrive at reliable predictions about the future of technology. Widely used when convergence of opinion through group consensus is needed.

dermatitis
Inflammation of the skin.

diathermy
Therapeutic use of high-frequency electric current to produce a thermal effect (heat) in the deep tissues of the body.

direct current
An electrical current which flows in one direction only. When used medically it is called the galvanic current; this current has distinct and marked polarity and marked secondary effects. These secondary effects include thermal changes and pain control. Galvanic stimulation may also be used to move fluids, exercise muscles, and relax spasticity.

diversified technique
Full spine chiropractic adjustive technique designed to correct vertebral malpositions and fixations in the most efficacious manner possible with respect to the clinical circumstances. In general, each college teaches its own diversified technique.

electrical stimulation
The use of an electrical current in the 1-4000Hz range to elicit a desired physiologic response.

emphysema
A pathological accumulation of air in tissues or organs; applied especially to swelling of the alveoli or of the tissue connecting the alveoli in the lungs, accompanied by tissue atrophy and breathing impairment.

endocrine or metabolic bone disorder
Condition of the endocrine or metabolic system that produces a pathological effect on bone tissue.

epiphysitis
Inflammation of an epiphysis or of the cartilage that separates it from the main bone.

extra-spinal joint conditions
Conditions involving the joints not of the spinal column, ie. ankle, knee, shoulder, fingers, etc.

extremity subluxation/joint dysfunction
Refers to an incomplete or partial dislocation in

which the articular surfaces have not lost contact. A certain degree of joint fixation exists which prevents normal joint motion and a return of the joint to its normal juxtaposition. Extremity subluxation may involve static properties (malposition) and/or dynamic properties (joint fixation) both of which result in joint dysfunction.

FCER
Foundation for Chiropractic Education and Research

FCLB
Federation of Chiropractic Licensing Boards

field internship
Practicing under the license and/or direct supervision of one or more physicians in an existing fee-for-service practice.

field test
A trial test of the survey of chiropractic given to 30 practitioners. Used to identify and modify any problems participants may have had in understanding and completing the survey.

finite population correction term
A factor included in the standard error formula which reduces the standard error as the proportion of the population sampled increases.

frequency factor
The estimated number of times the practitioner completing the survey performed the specified activity.

full spine
A chiropractic treatment approach which assesses all spinal levels as compared to approaches which focus on selected areas of the spine.

Gonstead technique
A "full spine" chiropractic method developed by Dr. Clarence Gonstead which utilizes radiographic analysis, instrumentation, and palpation to locate and specifically determine the malposition of subluxated vertebrae, which are then corrected manually.

Grostic technique
An upper cervical technique developed by Dr. John D. Grostic, Sr. that utilizes a specific measured analysis of the cervical spine together with manual adjusting to re-establish biomechanical balance of the spine.

hiatus or inguinal hernia
The protrusion of a loop or a part of an organ or tissue through an abnormal opening.

HMO
Health Maintenance Organizations

homeopathic remedies
Substances which are capable of producing in healthy persons symptoms like those of the disease being treated. Extremely small dosages are used to stimulate the body's natural defenses against the disease.

hyperlordosis of cervical or lumbar spine
Increased anterior curvature of cervical or lumbar spine.

iatrogenic
A result of treatment by a doctor

ICA
International Chiropractic Association

impairment evaluation
An evaluation to determine if there is an impairment of a body part.

immunological disorder
Disorder of the immune system.

importance
In the analysis of the survey, Frequency and Risk were multiplied together and the resultant product was labeled "importance".

interferential current
A physiotherapy modality which consists of two medium frequency currents that cross deep within a body part, and in so doing, trigger the formation of a third current that radiates from the inside to the

outside of the target tissue, providing therapeutic treatment to the tissues.

infrared baker lamp
A source of superficial heat utilizing radiation with a wave length between 7,700 and 14,000 Angstroms. Units are generally classified as either luminous or nonluminous.

integument
The skin as the covering of the body. Also known as integumentum.

interim survey form
The survey form administered to a small sampling of chiropractors and used to refine the form used for the study called "Survey of Chiropractic Practice".

intervertebral disc syndrome
A conglomeration of signs and symptoms usually consisting of episodic low back pain with possible symptoms of unilateral sciatic pain, progressive buttock, thigh, calf, and heel pain. There may also be a "C" scoliosis away from the side of pain, splinting, and a flattening of the lumbar spine. Weakness, numbness, and decreased reflexes may be noted in the involved extremity. This is a clinical diagnosis of disc herniation not verified by surgical intervention.

job analysis
Any of several methods of identifying the tasks performed on a job or the knowledge, skills and abilities required to perform that job.

job inventory
A list of tasks and functions performed on a job. The basis for forming a job analysis.

kyphosis of thoracic spine
Increased posterior convexity of the thoracic spine.

LBP
Low back pain

licensure
The process of obtaining a license which is required by law in order to enter a profession. It is the most restrictive form of occupational regulation because it prohibits anyone from engaging in the activities covered by the scope of practice without permission from a regulatory agency.

Life upper cervical technique
An upper cervical technique that utilizes a specific measured analysis of the cervical spine and a mechanical adjusting instrument to re-establish biomechanical balance of the spine.

Logan basic
A full spine technique that utilizes a system of body mechanics and adjusting procedures developed by Dr. Hugh B. Logan.

lumbar spine
The portion of the spine between the thorax and pelvis; ie. low back vertebrae.

manipulation
The therapeutic application of manual force. Spinal manipulative therapy broadly defined includes all procedures in which the hands are used to mobilize, adjust, manipulate, apply traction, massage, stimulate, or otherwise influence the spine and paraspinal tissues with the aim of influencing the patient's health.

Maritime
Refers to the Canadian provinces of New Brunswick, Newfoundland, Nova Scotia, and Prince Edward Island collectively.

mean
Arithmetic average.

Meric technique
A system of analysis and adjusting in which the body is divided into zones.

methodology
The design of a study or procedures utilized in a study.

MRI
Magnetic Resonance Imaging. A diagnostic imaging modality that uses a magnet, radio frequency transmission and reception, and has the ability to discriminate the location of a signal arising from the body of a patient in a three-dimensional coordinate system.

muscular atrophy
Wasting away of muscle tissue.

muscular dystrophy
Degenerative genetic disease characterized by weakness and atrophy of muscles.

muscular strain/tear
Injury caused by an over-exertion or over-stretching of some part of the musculature and ligamentous structures.

National Advisory Committee
Committee composed of representatives from state examining boards, chiropractic educators, and private practitioners to offer guidance to the job analysis project.

National Board of Chiropractic Examiners (NBCE)
National testing agency for the chiropractic profession.

NBCE Job Analysis Steering Committee
Committee composed of representatives of the Board of Directors of the National Board of Chiropractic Examiners, given the responsibility of guiding the job analysis project.

neuralgia
Pain which extends along the course of one or more nerves.

neurological exam
Examination of the nervous system.

neuromusculoskeletal examination (NMS)
A series of specific tests performed to determine the structural integrity and functional capacity of the bones, muscles, and nerves of the body.

NIMMO/Tonus receptor technique
System of deep connective tissue and fascial manipulation developed by Dr. Raymond Nimmo.

NUCCA technique
An upper cervical technique developed and endorsed by the National Upper Cervical Chiropractic Association; the objective of this technique is to balance the pelvis and spinal column to the body's vertical axis.

objective structured clinical examination
An examination characterized by the use of standardized patients who are extensively trained to reliably portray a health condition.

orthopedic exam
Examination of structures involved in locomotion including joints, muscles, ligaments and connective tissue.

orthotics
An orthopedic appliance or apparatus used to support, align, prevent, or correct deformities or to improve the function of parts of the body.

osteoarthritis/degenerative joint disease
A disease occurring primarily in older people, characterized by degeneration of the cartilage and hypertrophy of bone. Generally accompanied by pain and stiffness.

osteopath
A healthcare practitioner whose treatment is based on the theory that the body is capable of making its own remedies against disease and other toxic conditions. Osteopaths utilize generally accepted physical, medicinal, and surgical methods of diagnosis and therapy, while placing emphasis on the importance of normal body mechanics and manipulative methods of detecting and correcting faulty structure.

osteoporosis/osteomalacia
Conditions marked by softening or degenerating of the bone mass sometimes accompanied by pain, tenderness, muscular weakness, leading to bone fractures with minimal trauma.

Palmer upper cervical/HIO technique
A technique that utilizes specific x-ray analysis and adjusting procedures developed by Dr. B.J. Palmer for correction of subluxations in upper cervical vertebrae only.

paraffin bath
The therapeutic application of melted paraffin wax that has been diluted with mineral oil in a predetermined ratio (eg. 4:1). A form of superficial heat transferred by conduction.

pathology
The structural and functional manifestations of disease.

PEI
Prince Edward Island

peripheral neuritis
Inflammation, pain, and tenderness of a peripheral nerve.

Pettibon technique
An upper cervical technique that is based on spinal biomechanics and engineering physics theories developed by Dr. Burl Pettibon. The technique utilizes specific x-ray analysis and manual adjusting techniques as well as a mechanical adjusting instrument.

Pierce-Stillwagon technique
A full spine technique that utilizes specific x-ray analysis procedures, instrumentation procedures and adjusting procedures developed by Dr. Walter Pierce and Dr. Glenn Stillwagon.

pigment disorders
Abnormal skin coloring.

pilot test
A preliminary survey conducted by the NBCE to help determine the appropriate format and content of the Survey of Chiropractic Practice.

pituitary disorder
A disorder of the pituitary gland most commonly originating in the anterior lobe of the pituitary gland or in the neurohyophysis.

polycythemia
An increase above normal in the number of red cells in the blood.

practical exam
An exam that requires licensure candidates to perform tasks or procedures which might commonly be required in practice.

Practice Model Log
An instrument developed for self-administration by practicing chiropractors. Doctors provided information on each of 10 consecutive patient visits. Data from the survey were used as an additional source of information about the profession as well as a basis for developing the Interim Survey Form.

preceptorship
Undergraduate and graduate programs in which the chiropractic college may place a student chiropractor or a recent graduate in a licensed chiropractor's office to learn clinical procedures and patient management methods under guidelines established by the sponsoring chiropractic college.

presenting condition
One or more symptoms or other concerns for which the patient is seeking care or advice.

proportional sampling
A form of sampling in which the number selected is a percent of the population.

psoriasis
A condition which produces dry, scaling patches of skin sometimes associated with a distinctive arthritis.

radiculitis or radiculopathy
Inflammation or disease of the root of the spinal nerve.

RAND
A nonprofit institution that seeks to improve public policy through research and analysis.

rating scales
Rating scales attempt to obtain appraisals on a common set of attributes for all raters and ratees and to have these expressed on common quantitative and qualitative scales.

reliability
The degree to which test scores are free of errors of measurement.

return rate
Percent of practitioners selected to complete the Survey of Chiropractic Practice who either returned the survey form or who were accounted for in another manner.

research protocols
Procedures to be followed in a research study.

risk factor
The degree of risk to public health or patient safety perceived by survey respondents relative to omission or poor performance of 45 activities listed in the Survey of Chiropractic Practice.

roentgenology
The branch of radiology that deals with the diagnostic and therapeutic use of roentgen rays.

sampling design
The specified method by which individuals are selected to be surveyed.

SMT
Spinal manipulative treatment

S.O.A.P.
Subjective, Objective, Assessment Plan/Procedure. A method of recording information in a patient's record based on a problem-oriented clinical approach.

S.O.T. technique
A system of soft tissue, reflex, diagnostic and adjusting techniques developed by Dr. M.D. DeJarnette; this technique emphasizes the close physiological and biomechanical relationships between the sacrum and the occiput.

SPEC
Special Purposes Examination for Chiropractic. The SPEC is designed to assess licensed or previously licensed chiropractic practitioners in areas reflecting clinical conditions encountered in general practice. Available beginning March 1993.

spinal adjustment
The art of replacement to their normal position of subluxated vertebrae for the purpose of relieving impingement of the structures transmitted by the intervertebral foramen, thus restoring to the parts supplied by these nerves their normal innervation. This replacement of subluxated vertebrae usually is accomplished by the application of a definite thrust by the hands of the chiropractor in contact with the subluxated vertebra.

spinal canal stenosis
A significant reduction in diameter of the spinal canal which may result in symptoms of spinal cord or nerve root compression.

standard deviation
The standard deviation is a measure of variability, spread or dispersion of a set of scores around their mean value.

standard error
This is an abbreviation for standard error or estimate, which indicates the accuracy of a score. The standard error of estimate is the standard deviation divided by the square root of the sample size, and corrected for sampling from a finite population.

subluxation
A subluxation is the alteration of the normal dynamics, anatomical, or physiological relationship of contiguous articular structures.

survey instrument
Refers to the questionnaire developed by the NBCE for the Survey of Chiropractic Practice job analysis.

systemic/rheumatoid arthritis or gout
Inflammation of the joints which tends to be chronic and progressive, leading to deformities and disability.

"t-test"
A statistical procedure used to determine whether two means (arithmetic averages) differ significantly from each other.

tendinitis/tenosynovitis
Inflammation of a tendon or inflammation of a tendon and its enveloping sheath.

Thompson technique
A system of analytical and adjusting techniques developed by Dr. J. Clay Thompson that emphasizes the use of a Thompson terminal point adjusting table.

thoracic outlet syndrome
Compression of the brachial plexus or subclavian artery by attached muscles in the region of the first rib and clavicle.

thymus or pineal disorder
The thymus gland is associated with cell-mediated immunity. Pineal gland dysfunction may be responsible for some cases of hypo or hypergonadism but speculation as to the gland's actual function still exists.

thyroid or parathyroid disorder
Dysfunction of the thyroid or parathyroid glands, producing abnormally high or low concentrations of the circulating hormone levels which control the body's metabolic functions.

TMJ syndrome
Those various symptoms of discomfort, pain, or pathosis stated to be caused by loss of vertical dimension, lack of posterior occlusion, or other malocclusion, trismus, muscle tremor, arthritis, or direct trauma to the temporomandibular joint.

Toftness technique
A system of analysis and adjustment of the spine developed by Dr. I.M. Toftness.

traction
Therapeutic technique utilizing axial tension applied to a body segment.

ulcer of stomach, intestine or colon
A lesion on the inner mucous surface of the digestive tract caused by superficial loss of tissue, usually with inflammation.

ultrasound
Therapeutic technique that utilizes high frequency sound waves to produce micromassage and deep heating effects in a body segment.

ultraviolet therapy
Modality that produces radiation with strong actinic properties and is used to produce photochemical effects.

upper cervical vertebrae
The most superiorly located bones of the spine, usually referring to the first and second cervical vertebrae.

validity
The degree to which inferences from test scores are appropriate, meaningful or useful.

vertebral facet syndrome
A condition in which symptoms arise from inflamed, damaged, or dysfunctional vertebral facets; often accompanies increased spinal lordosis and may be secondary to intervertebral disc failure or degeneration.

vertebrobasilar arterial insufficiency
Lack of adequate blood flow through the vertebral arteries or their union which forms the basilar artery, ultimately resulting in cerebral ischemia or decreased blood flow to the brain.

vibratory therapy
The use of fingers or a mechanical device to produce oscillations in body tissues or to stimulate proprioceptive nerve functions.

weighting factor
A number used when aggregating data from individuals or subgroups such that the aggregated sample accurately represents the population.

whirlpool/hydrotherapy
Modality that may utilize cold or heated water to produce various mechanical and/or physiological effects on the body or a portion of the body.

Appendix H
Bibliography

Alhstrand, S. *National Opinion of Chiropractic Users/Nonusers Study*. Princeton, NJ: The Gallup Organization, Inc., March 1991.

American Chiropractic Association. *Planning a Career in Chiropractic*. Virginia: American Chiropractic Association, undated.

American Chiropractic Association. *Indexed Synopsis of Policies on Public Health and Related Matters* 1992-1993. Virginia: American Chiropractic Association, undated.

American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. *Standards for Educational and Psychological Testing*. Washington, D.C.: American Psychological Association, 1985.

Anderson, Scarvia B., Samuel Ball, Richard T. Murphy and Associates. *Encyclopedia of Educational Evaluation*. San Francisco: Jossey-Bass, 1981.

Balduc, Howard A. *Scientific Evidence of Chiropractic Treatment Effectiveness*. Virginia: American Chiropractic Association, 1991

Bernstein, Stuart. *Health Personnel in the United States*, Publication No. HRS-P-OD-92-1. U.S. Department of Health and Human Services, 1991.

Canadian Chiropractic Association, *Chiropractic in Canada: A Directory of Facts*. The Canadian Chiropractic Association, May 1992.

Canadian Memorial Chiropractic College, *Canadian Memorial Chiropractic College 1991-1993 Calendar*. Canadian Memorial Chiropractic College, 1991.

Carmines, Edward G. and Richard A. Zeller. *Reliability and Validity Assessment*. Beverly Hills: Sage Publications, 1987.

Cassidy, David, Haymo W. Thiel, and William Kirkaldy-Willis. "Side Posture Manipulation for Lumbar Intervertebral Disk Herniation," *Journal of Manipulation and Physiological Therapeutics*, Vol.16, No. 2, 1993.

Chapman-Smith, David. *Chiropractic: A Referenced Source of Modern Concepts*. Pennsylvania: Practice Makers Products, 1988.

Cherkin, Daniel C. "Family Physicians and Chiropractors: What's Best for the Patient?" *The Journal of Family Practice*, Vol. 35, No. 5, 1992.

Cherkin, Daniel C., and Frederick A. MacCornack. "Patient Evaluations of Care from Family Physicians and Chiropractors," *Western Journal of Medicine* 150 (March 1989): 351-355.

Cianciulli, Arnold E. *Chiropractic: A Primary Care Gatekeeper.* Des Moines, IA: Foundation for Chiropractic Education and Research, 1992.

Colton, Dean A. and Michael T. Kane. *The Effect of Pre-letters on Survey Study Response Rates.* Paper presented at the annual meeting of the American Educational Research Association. San Francisco, CA: March 1989.

Colton, Dean A., Michael T. Kane, Carole Kingsbury, and Carmen Estes. *Examining the Construct Validity of Job Analysis Data: A Strategy and an Example.* Paper presented at the annual meeting of the American Educational Research Association. Washington, D.C.: April 1987.

Commission of Inquiry into Chiropractic. *Chiropractic in New Zealand.* New Zealand: P.D. Hasselberg, Government Printer, 1979.

Curtis, Peter, M.D. and Geoffrey Bove. "Family Physicians, Chiropractors, and Back Pain". *The Journal of Family Practice*, 35, No. 5 (November 1992).

Dean, David H. and Robert M. Schmidt. *A Comparison of the Costs of Chiropractors Versus Alternative Medical Practitioners.* Richmond, Virginia: Bureau of Disability Economics Research Robins School of Business, January 1992.

Ebrall, P.S. "Mechanical Low-Back Pain: A Comparison of Medical and Chiropractic Management Within the Victorian WorkCare Scheme," *Chiropractic Journal of Australia* 22, no.2 (June 1992): 47-53.

Falk, Denis, Neil Weisfeld, and Peggy J. McCarberg. *The National Commission for Health Certifying Agencies to Assure Continuing Competence*, Publication No. (HRAQ) 81-5. U.S. Department of Health and Human Services, 1980.

Federation of Chiropractic Licensing Boards, *Official Directory of the Federation of Chiropractic Licensing Boards.* Federation of Chiropractic Licensing Boards. Colorado, 1992.

Federation of Chiropractic Licensing Boards. *Proceedings from the Clinical Competency Workshop.* Meeting of February 9, 1984.

Foundation for the Advancement of Chiropractic Tenets and Science. *FACTS Bulletin.* Arlington, Virginia: Foundation for the Advancement of Chiropractic Tenets and Science, 1992.

Foundation for the Advancement of Chiropractic Tenets and Science. *A Study of Chiropractic Worldwide.* Arlington, Virginia: Foundation for the Advancement of Chiropractic Tenets and Science, 1990.

Foundation for Chiropractic Education and Research. *Manpower in the Chiropractic Health Profession: A Survey of Training Programs and Service Providers, Part I.* Foundation for Chiropractic Education and Research, 1978.

Foundation for Chiropractic Education and Research. *Chiropractic: A Review of Current Research*. Des Moines, IA: Foundation for Chiropractic Education and Research, 1993.

Gael, Sidney. *Job Analysis: Guide to Assessing Work Activities*. San Francisco: Jossey-Bass, 1987.

Guralnik, David B., Editor in Chief. *Webster's New World Dictionary of the American Language*. 2d ed. New York: Simon and Schuster, 1980.

Haldeman, Scott. *Principles and Practice of Chiropractic*. 2d ed. Norwalk, CT: Appleton & Lange, 1992.

Haldeman, Scott, David Chapman-Smith, and Donald M. Petersen, Jr. *Guidelines for Chiropractic Quality Assurance and Practice Parameters, Proceedings of the Mercy Center Consensus Conference*. Maryland: Aspen Publishers, 1993.

Janse, Joseph, R.H. Houser, and B.F. Wells. *Chiropractic Principles and Technic*. Chicago: National College of Chiropractic, 1947.

Jarvis, Kelly B., Reed Phillips, and Elliot K. Morris. "Cost per Case Comparison of Back Injury Claims of Chiropractic versus Medical Management for Conditions with Identical Diagnostic Codes." *Journal of Occupational Medicine* 33, no. 8 (August 1991): 847-852.

Jaskoviak, Paul A. and R.C. Schafer. *Applied Physiotherapy*. Arlington, Virginia: The American Chiropractic Association, 1986.

Kane, Michael, Carole Kingsbury, Dean Colton, and Carmen Estes. *A Study of Nursing Practice and Role Delineation and Job Analysis of Entry-level Performance of Registered Nurses*. National Council of State Boards of Nursing, 1986.

Kelner, Merrijoy, Oswald Hall, and Ian Colter. *Chiropractors, Do They Help?* Toronto: Fitzhenry & Whiteside, 1980.

Kirkaldy-Willis, W.H. and J.D. Cassidy. "Spinal Manipulation in the Treatment of Low-Back Pain," Canadian Family Physician 31. (March 1985): 535-540.

Kokjohn, Katrina, Della M. Schmid, John J. Triano, and Patricia C. Brennan. "The Effect of Spinal Manipulation on Pain and Prostaglandin Levels in Women with Primary Dysmenorrhea," *Journal of Manipulative and Physiological Therapeutics* 15, no. 5 (June 1992): 279-285.

Korr, Irvin M. *The Neurobiologic Mechanisms in Manipulative Therapy*. New York: Plenum Press, 1978.

Langlsey, Donald, M.D. *Legal Aspects of Certification and Accreditation*. Illinois: American Board of Medical Specialties, 1983.

Lewit, Karel. *Manipulative Therapy in Rehabilitation of the Motor System*. London: Butterworth, 1985.

Lindquist, E. F. *Design and Analysis of Experiments in Psychology and Education*. Boston: Houghton Mifflin Company, 1956.

Linn, Robert L. *Educational Measurement*. 2d ed. New York: MacMillan Publishing Company, 1989.

Madaus, George F. *The Courts, Validity, and Minimum Competency Testing*. Boston: Kluer -Nijhoff Publishing, 1983.

Manga, Pran Ph.D, Douglas E. Angus, Costa Papadopoulos, William R. Swan. *A Study to Examine the Effectiveness and Cost-Effectiveness of Chiropractic Management of Low-Back Pain*. Kenilworth Publishing, 1993.

McNamee, Kevin. *The Chiropractic College Directory*. Los Angeles: KM Enterprises, 1992.

Meade, T.W., Sandra Dyer, Wendy Browne, Joy Townsend, and A.O. Frank. "Low Back Pain of Mechanical Origin: Randomized Comparison of Chiropractic and Hospital Outpatient Treatment," *British Medical Journal* 300, no. 6737 (June 2, 1990): 1431-1437.

Miller, Harry G., Reed G. Williams, and Thomas M. Haladyna. *Beyond Facts: Objective Ways to Measure Thinking*. New Jersey: Educational Technology Publications, 1978.

Northwestern Chiropractic Clinic. *Integrated Chiropractic Patient Care: A Manual of Recordkeeping and Patient Care Procedures*. St. Paul: Northwestern Chiropractic College, 1983.

Nyiendo, Joanne. "Disabling Low Back Oregon Workers' Compensation Claims. Part II: Time Loss," Journal of Manipulative and Physiological Therapeutics14, no. 4 (May 1991): 231-239.

Patel-Christopher, A. "Family Physicians and Chiropractors: A Need for Better Communication and Cooperation." *The Chiropractic Report* 5, no. 1 (November 1990).

Plaugher, Greg. *Textbook of Clinical Chiropractic*. Baltimore: Williams and Wilkin: January 1993.

Potter, G.E. "A Study of 744 Cases of Neck and Back Pain Treated with Spinal Manipulation," *Journal of Canadian Chiropractic Association* (December 1977): 154-156.

Reaves, Randolph, J.D. *The Law of Professional Licensing and Certification*. North Carolina: Publications for Professionals, 1984.

Rosenfeld, Michael, Benjamin Shimberg, and Richard F. Thornton. *Job Analysis of Licensed Psychologists in the United States and Canada*. New Jersey: Education Testing Service, 1983.

Rosenfeld, Michael, and Richard F. Thornton. *Studies to Design Model Systems for Selecting State Employment Service Local Office Managers and Interviewers*. New Jersey: Educational Testing Service, 1976.

Saunders, W.B. Company. *Dorland's Illustrated Medical Dictionary*. 27 ed. Philadelphia: Harcourt Brace Jovanovich, 1988.

Schafer, R.C., and Louis Sportelli. *Opportunities in Chiropractic Health Care Careers*. Illinois: VGM Career Horizons, 1987.

Schafer, R.C. *Symptomatology and Differential Diagnosis*. Arlington, Virginia: The American Chiropractic Association 1986.

Schifrin, Leonard G. *Mandated Health Insurance Coverage for Chiropractic Treatment: An Economic Assessment with Implications for the Commonwealth of Virginia*. Richmond, Virginia: The College of William and Mary, Williamsburg, Virginia; and Medical College of Virginia, January 1992.

Selby, Lee, Randall Ferguson, and Arch Bishop III. *Chiropractic in Tennessee*. Tennessee Board of Chiropractic Examiners, 1982.

Shekelle, Paul, and Robert H. Brook, M.D. "A Community-Based Study of the Use of Chiropractic Services." *American Journal of Public Health* 1991; 81: 439-442.

Shekelle, Paul, and Alan Adams. "Spinal Manipulation for Low-Back Pain," *Annals of Internal Medicine* 117, no. 7 (October, 1, 1992): 590-598.

Shekelle, Paul, Alan Adams, Mark Chassin, Eric Hurwitz, Reed Phillips, and Robert Brook. *The Appropriateness of Spinal Manipulation for Low-Back Pain*. Santa Monica, CA: RAND Corporation, 1992.

Shimberg, Benjamin. *Occupational Licensing: A Public Perspective*. New Jersey: Educational Testing Service, 1982.

Stano, Miron. "A Comparison of Health Care Costs for Chiropractic and Medical Patients," *Journal of Manipulative and Physiological Therapeutics* 16, no. 5 (June 1993): 291-299.

Stano, Miron, Jack Ehrhart, and Thomas Allenburg. "The Growing Role of Chiropractic in Health Care Delivery," *Journal of American Health Policy*, November/December 1992.

States, Alfred. *States Manual of Spinal, Pelvic and Extravertebral Technic*. 2d ed. Edited by Constance R. Kirk, Dana J. Lawrence, and Nila L. Valvo. Illinois: National College of Chiropractic, 1985.

Stedman, Thomas L. *Stedman Medical Dictionary*. Baltimore: Williams and Wilkins, 1990.

Sukhatme, Pandurang V., Balkrishna V. Sukhatme, Shashikala Sukhatme, and C. Asok. *Sampling Theory of Surveys with Applications*. Iowa State University Press and Indian Society of Agricultural Statistics, 1984.

Terrett, Allan J. and Andries M. Kleynhans. "Complications from Manipulation of the Low Back," *Journal of the Australian Chiropractors' Association*. No. 4 (December 1992): 129-140.

The Council of Chiropractic Education Standards For Chiropractic Institutions. Iowa: The Council on Chiropractic Education, 1990.

The Gallup Organization, Inc. *A Survey of North Dakota Adults Measuring Public Awareness, Utilization and Acceptance of Chiropractic Care in North Dakota*. Princeton, NJ: The Gallup Organization, Inc., January 1985.

Thorndike, Robert L., and Elizabeth Hagen. *Measurement and Evaluation in Psychology and Education*. 4 ed. New York: John Wiley & Sons, 1977.

Vear, Herbert J. *Chiropractic Standards of Practice and Quality of Care*. Maryland: Aspen Publishers, 1992.

Wallace, William C. "Mediclaim" 13, no. 4. Illinois: State Farm Insurance Companies, November 1992.

Wight, J. S. "Migraine: A Statistical Analysis of Chiropractic Treatment". *The ACA Journal Of Chiropractic* 15 no. 9 (1978): S63-67.

Wisconsin Chiropractic Examining Board, the Office of Examinations, Wisconsin Department of Regulation and Licensing, *Task Analysis Survey for Chiropractors*. Wisconsin Department of Regulation and Licensing. Wisconsin: April, 1983.

Wolk, Steve. *Chiropractic Versus Medical Care: A Cost Analysis of Disability and Treatment for Back-Related Workers' Compensation Cases*. Arlington, Virginia: The Foundation for Chiropractic Education and Research, 1988.

Yochum, Terry R. and Lindsay J. Rowe. *Essentials of Skeletal Radiology*. Baltimore: Williams & Wilkins, 1987.

Appendix I
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