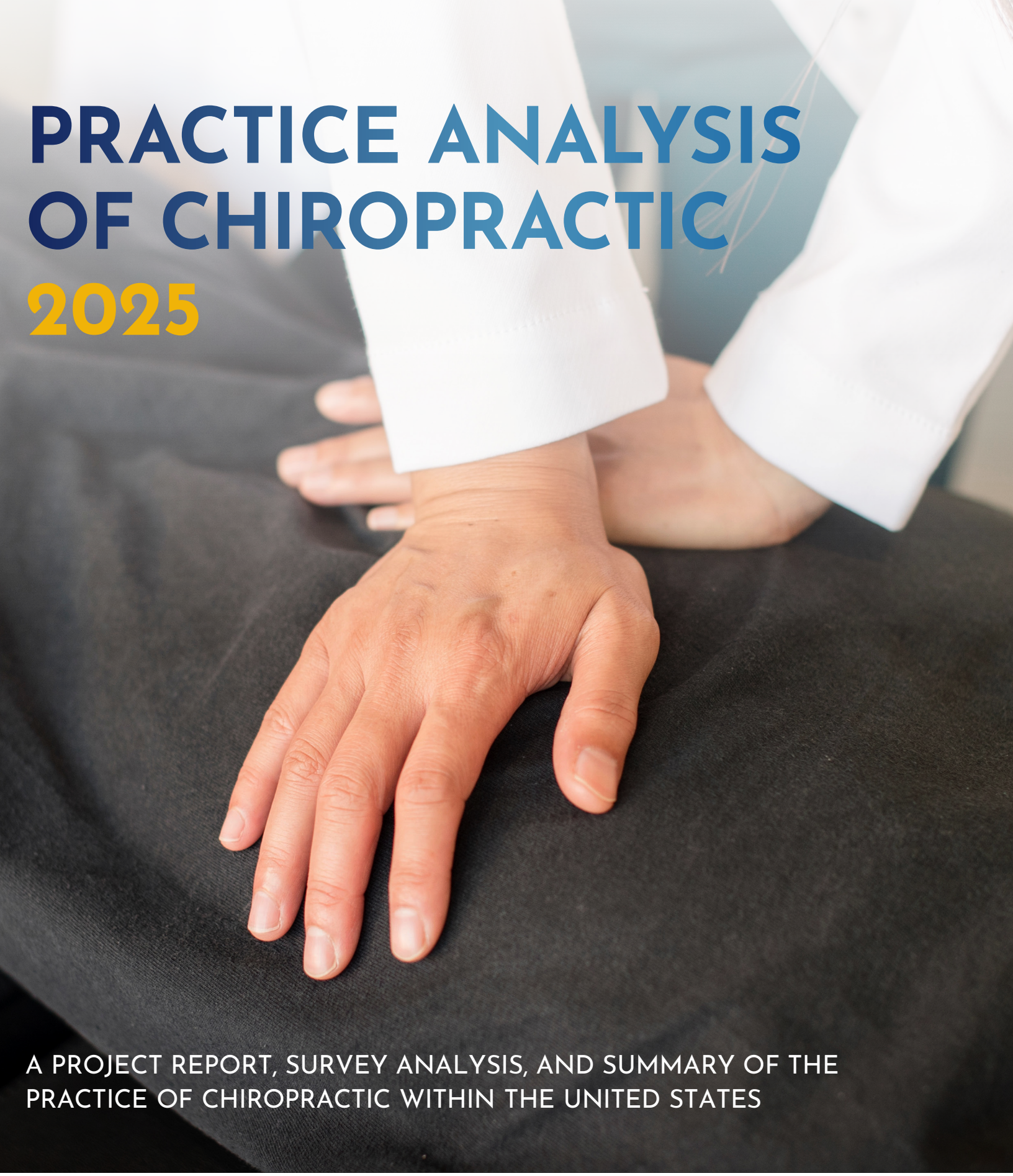

PRACTICE ANALYSIS OF CHIROPRACTIC 2025

A PROJECT REPORT, SURVEY ANALYSIS, AND SUMMARY OF THE PRACTICE OF CHIROPRACTIC WITHIN THE UNITED STATES

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Contents

Executive Summary

This *Practice Analysis* serves as a critical component in the development of valid and reliable assessment tools for licensure and certification within the professional field of chiropractic care. This analysis is instrumental to ensuring the validity of licensure examinations by systematically identifying, documenting, and analyzing the core competencies, responsibilities, and skills minimally required for professional chiropractic practice. By establishing a comprehensive profile of the chiropractic profession practicing chiropractors across the U.S. and its territories., the *Practice Analysis of Chiropractic 2025* describes current clinical practices across the U.S. and its territories and provides valuable insights necessary for the continuous refinement of chiropractic education and licensure programs. Furthermore, this process ensures that licensing examinations remain aligned with contemporary practice expectations, while also anticipating emerging changes and advancements in the field.

Beyond its impact on licensure and workforce analysis, the *Practice Analysis of Chiropractic 2025* may serve as a valuable resource for stakeholders within and external to the profession, including policymakers, educators, insurance providers, and the public. The study's findings contribute to evidence-based decision-making by offering a data-driven overview of the chiropractic profession, highlighting its growing presence within the broader healthcare system in the U.S. The comprehensive nature of the *Practice Analysis of Chiropractic 2025* is reflected in its structured content, which encompasses key areas of interest within the profession. The report is structured as follows:

- *Introduction:* Provides an overview of the purpose, significance, and objectives of the 2025 Practice Analysis.
- *Overview of the Chiropractic Profession:* Explores the historical development and projected future trends of chiropractic care.
- *Methods of Survey Construction, Data Collection, and Data Analysis:* Details the methodology employed to ensure the validity and reliability of findings.
- *Demographic Portrait of the Chiropractic Profession in the United States:* Presents statistical insights into workforce composition, including sex, age, ethnicity, and economics.
- *Practice Settings and Patient Characteristics:* Describes the various professional environments in which chiropractors operate and the demographics of their patient populations.
- *Professional Functions and Treatment Procedures:* Identifies key clinical responsibilities, therapeutic interventions, and treatment modalities utilized in chiropractic practice.
- *Conditions:* Reports a list of conditions chiropractors treat, co-manage, and refer to other providers.
- *Scientific, Ethical and Professional Practices:* Describes data on the integration of scientific research, ethics, and collaboration in chiropractic practice.
- *Conclusion:* Summarizes key findings and limitations of the study.

Methodology and Study Design

The methodology employed in this study followed a Functional Job Analysis approach, incorporating stakeholder input, expert consultations, and

survey data collection from practicing chiropractors across the U.S. and its territories. The 2024 Survey of Chiropractic Practice was designed to capture essential tasks, competencies, and trends influencing the profession. The final analysis included data from 3,876 chiropractors from the U.S. and its territories. The study assessed task frequency, associated risks, and importance ratings, which were used to develop an Importance Index, a metric guiding the structure of licensure examinations (Part III and Part IV). This rigorous approach ensures that licensure exams remain relevant and reflective of real-world chiropractic practice.

Demographic Trends and Workforce Composition

According to the World Federation of Chiropractic, the majority of the world's chiropractors are located in the United States. While the majority of chiropractors are men, the profession is witnessing an increase in female representation, now comprising 30% of the workforce but approaching 50% in the youngest cohort of graduates. Ethnic and racial diversity of chiropractors is trending towards better representation of the U.S. population.

Practice Characteristics and Specialization

On average, 40% of chiropractors dedicate 30–39 hours per week to patient care. Most chiropractors operate in private practices, with 49% working in solo-practitioner offices and 36% in multi-chiropractor settings. Chiropractors practicing in multidisciplinary healthcare facilities represent the bulk of the remaining practice environments at 12%. Most respondents indicated that they engaged in general chiropractic practice for spine care/health. Prevalent foci included whole health and community health. Chiropractors continue to receive training in specialized fields such as rehabilitation, sports, and pediatrics.

Professional Functions and Patient Conditions

Chiropractors perform diverse clinical functions, categorized into patient assessment, case management, communication, and treatment. The most common conditions that chiropractors report they manage 50% or more of the time include acute and chronic back and neck pain, spinal and extremity joint dysfunctions, pain and postural syndromes, congenital or developmental deformity (such as, scoliosis, hyper/hypo lordosis or kyphosis), traumatic injuries (joint sprain, muscle strain, whiplash disorder), and neurogenic or joint pain (intervertebral disc syndrome, radiculitis, osteoarthritis, headaches). Additionally, chiropractors report that they co-manage a variety of conditions with other health professionals and refer patients with various conditions to other providers when indicated.

Scientific, Ethical and Professional Practices

Chiropractors uphold ethical and professional responsibilities through evidence-based decision-making, patient-centered care, a commitment to ethics, and interprofessional collaboration. A majority of chiropractors report using scientific evidence frequently and integrate clinical expertise into patient care. The majority ensure patient values are incorporated into treatment decisions, reinforcing the importance of individualized care. Currently, telehealth use is low, highlighting an area for potential growth. Chiropractors prioritize confidentiality, equitable treatment, and data security, ensuring compliance with Health Insurance Portability and Accountability Act (HIPAA)[1] regulations and ethical healthcare standards.

[1] HIPAA is a U.S. federal law enacted in 1996 that establishes national standards to protect sensitive patient health information (PHI) from being disclosed without the patient's consent or knowledge.

Conclusion

The *Practice Analysis of Chiropractic 2025* describes the chiropractic profession from the point of view of the practitioner and current practice landscape. This practice analysis helps to ensure that the NBCE certification exams reflect current entry-level practice. The results of this report have cascading benefits to chiropractic educators, students, researchers, healthcare insurers, healthcare professionals, Doctors of Chiropractic, and most importantly, the patients who receive chiropractic care.

Chapter One
Introduction

1.1 Overview

The *Practice Analysis of Chiropractic 2025* represents a comprehensive report and analytical overview based on a survey of the chiropractic community within the U.S. Initiated by the National Board of Chiropractic Examiners (NBCE), this constitutes the seventh installment in a series of surveys of U.S. chiropractors, with the inaugural survey having been conducted in 1991 and subsequently reported in the 1993 Job Analysis of Chiropractic (Christensen & Morgan, 1993). Subsequent surveys have been systematically carried out approximately every five years (Christensen et al., 2000; Christensen et al., 2005; Christensen et al., 2010; Christensen et al., 2015; Himelfarb et al., 2020).

A practice analysis is defined as "a systematic collection of data describing the knowledge, skills, and/or competencies required to practice a profession" (Knapp, 1995). An important feature of a practice analysis is to develop valid and reliable certification exams by ensuring the test content aligns with the actual practice demands.

Thus, practice analyses serve as the cornerstone for the development of credentialing examinations and are generally used as the primary source of evidence when validating scores on such exams (Raymond, 2001; Raymond, 2005). According to Kane, "licensure and certification decisions are generally based on a chain of inference from the results of a practice analysis to test specifications, to a test, to examinee performance on the test, to a pass-fail decision" (Kane, 1997). The NBCE performs practice analyses in the U.S. on a regular basis to profile the chiropractic profession, which assists with the refinement of NBCE exam content over time, particularly for the clinical competency and clinical application exams (Parts III and IV, respectively).

Beyond the U.S., the NBCE has extended its survey efforts to encompass chiropractic practices in Canada (Christensen et al., 1993), Australia, and New Zealand (Christensen et al., 1994). Complementary analyses conducted by other scholars have detailed the practices of chiropractors in Switzerland (Humphreys et al., 2009; Baechler et al., 2024) and South Africa (Johl et al., 2017). Additionally, specialized segments within the chiropractic profession, such as pediatric chiropractors (Pohlman et al., 2010) and those focusing on clinical nutrition (Shotts et al., 2021), have been the subjects of focused surveys regarding their professional practices.

1.2 Legal Basis for Practice Analysis

The U.S. federal government acknowledges the need for standardized testing and vocational selection procedures through the Uniform Guidelines on Employee Selection Procedures (Equal Employment Opportunity Commission, 1978). The Uniform Guidelines are designed to assist licensing, certification boards, and other bodies to comply with the requirements of Federal law prohibiting the use of discriminating employment practices. The guidelines also provide specifications for the use of tests as selection criteria and guidance on validating tests, which form the basis of job and practice analyses.

The guidelines recognize three primary forms of validity studies: criterion-related validity, content validity, and construct validity. At the core of these studies is the requirement for evidence demonstrating the critical components of job tasks and the characteristics necessary for candidates to achieve successful performance. Job or practice analyses fulfill this purpose by providing empirical evidence of the essential skills, knowledge, and competencies required for effective performance within a profession. These analyses serve as a foundation for ensuring alignment between job demands and the qualifications of prospective employees (U.S. Equal Employment Opportunity Commission, 1979).

The Uniform Guidelines have been adopted by five federal agencies: the Equal Employment Opportunity Commission, the Office of Personnel Management, the Department of Labor, the Department of Justice, and the Department of Treasury (Foster & Condrey, 2005). The overarching theme of these Guidelines emphasizes the imperative for a substantive correlation between the selection instruments (tests) and the job requirements for which these tests are employed.

Judicial precedents have frequently emphasized the necessity for rigorous occupational analysis. A landmark decision by the Supreme Court of the U.S. in 1971, Griggs v. Duke Power Co., mandated that tests must be demonstrably relevant to the job requirements. This ruling emerged from a case where a public utility corporation's prerequisite of a high school diploma for higher-paid positions was contested. In a subsequent ruling in 1983, Kirkland v. New York Department of Correctional Services, the Court articulated that identifying the relative significance of skills and tasks associated with a job, along with the competencies required for various job facets, are critical elements of job analysis. It further delineated that the foundation

of constructing a content-valid examination hinges on a thorough job analysis.

1.3 Exam Validity

Assessment is a critical element in professional licensing and certification processes that protect public safety. Examinations designed for professional licensure are required to yield valid, reliable, and fair outcomes. An essential component of the validity of an examination is its content, which must accurately reflect the necessary knowledge and skills expected of a licensed practitioner. Practice analysis plays a vital role in this context by offering a methodological framework to identify and confirm these essential competencies.

The *Practice Analysis of Chiropractic 2025* provides a comprehensive overview of the most recent survey conducted by the NBCE and integrates data from prior surveys for comparative analysis. This practice analysis is instrumental in delineating the professional tasks that are frequently performed and deemed critical within the chiropractic field. By establishing the relevance and frequency of these tasks, the analysis directly informs the development of licensure examinations.

The authority on testing and credentialing, the Standards for Educational and Psychological Testing (American Educational Research Association et al., 2014), underlines that practice analysis should serve as the primary foundation for defining the content domain of licensure exams. While the techniques employed in practice analysis may resemble those used in employment testing, the scope in credentialing contexts is specifically narrowed to the knowledge and skills necessary for effective practice of a specific profession.

Moreover, the standards advocate that the practice analysis should be integral to the validation process of licensure examinations, focusing on core professional knowledge and skill competencies, which states the following:

> *Some form of job or practice analysis provides the primary basis for defining the content domain… Although the job analysis techniques may be similar to those used in employment testing, the emphasis for credentialing is limited appropriately to knowledge and skills necessary for effective practice. (AERA et al., 2014, p. 182)*

Michael Kane (2006) further elaborates on the inferential nature of measurement in assessment, where conclusions about individuals or entities are drawn from a limited set of data. Validating the use or interpretation of an examination involves a critical evaluation of the underlying rationale supporting the claims made based on these measurements. This evaluative process is essential to establish and maintain the legitimacy and accuracy of the conclusions drawn from licensure examinations. This reinforces their role in ensuring that qualified and competent professionals enter practice and ultimately enhance public protection.

> *To validate an interpretation or use of measurements is to evaluate the rationale, or argument, for the claims being made, and this in turn requires a clear statement of the proposed interpretations and uses and a critical evaluation of these interpretations and uses. (Kane, 2006, p. 17)*

Content validity, in the realm of psychometric assessment, refers to the extent to which a test measures the representative aspects of the content it is intended to assess (Sireci, 1998). It is one of the most crucial forms of validity for educational and psychological tests, particularly those used for certification or licensing purposes (Weston et al., 2018). Content validity is not merely about the test covering the subject matter, but it involves a systematic examination of the test content to ensure that it encompasses all facets of the construct it purports to measure. This form of validity ensures that the test items are relevant to, and representative of, the targeted domain of knowledge or skills,

without being overly narrow or excessively broad (Laduca, 1994).

In the context of NBCE pre-licensure examinations, content validity is paramount. For NBCE exams, it is essential that the questions reflect and align with the current standards and practices of the chiropractic profession. The primary goal is to ensure that the content of the examination mirrors the minimum necessary skills and knowledge that a newly licensed chiropractor should possess.

1.4 Specifics of the 2025 Chiropractic Practice Analysis

Input from authoritative professionals is recommended in establishing content validity (Knapp & Knapp, 1995). Content validity of NBCE exams involved information from subject matter experts who were an essential part of this comprehensive study. The NBCE consulted with multiple experts in the fields of chiropractic, education, healthcare, and law regulation for both the formation of the chiropractic practice analysis survey and its interpretation. As recommended by Weekley et al (2019), strengths and limitations of the data were thoughtfully weighed by all involved, and accurate interpretations were inferred after these experts reached consensus.

NBCE consistently engages with stakeholders to enhance the Chiropractic Practice Analysis. In 2023, an additional stakeholder input study was conducted to gather input from 22 stakeholder groups, including political and professional associations, industry services, educational and accrediting bodies, healthcare providers, researchers, media, legislative bodies, licensing regulators, and managed healthcare organizations. The feedback received from these groups was integrated into the design of the survey and the 2025 Practice Analysis report and is thoroughly discussed in Chapter 3.

The 2025 Chiropractic Practice Analysis used a task-oriented method for describing the chiropractic profession. These results are based on the survey responses of 3,876 chiropractors practicing at least 20 hours per week across the U.S. In this method, the role of a Doctor of Chiropractic is broken down into components that can be rated on several different dimensions at once (Davis-Becker & Buckendahl, 2017). Two of those dimensions include the most reliable scales in a job analysis, which are those measuring frequency and importance (Dierdorff & Wilson, 2003). Frequency refers to how often a specific occupational task is performed. Importance refers to the significance, or impact, of a task. Inherent in the importance of a task is a third dimension- the perceived risk of either improperly performing the task or not performing it at all. The importance is calculated by multiplying frequency by risk. In the *Practice Analysis of Chiropractic 2025*, tasks are divided into four main categories: patient assessment, case management, communication, and treatment. The frequency, risk and importance of these tasks along with demographic data, professional characteristics, and the identification of the types of conditions chiropractors manage provides a current profile of the chiropractic profession.

The goal of this practice analysis is to ensure that the NBCE certification exams reflect current entry-level practice. Thus, this practice analysis describes the tasks performed by chiropractors and the knowledge expected for competent performance. The results of this report have cascading benefits to chiropractic educators, students, researchers, healthcare insurers, healthcare professionals, Doctors of Chiropractic, and most importantly, the patients who receive chiropractic care.

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Chapter Two
The Chiropractic Profession

2.1 Overview

The World Federation of Chiropractic (WFC) states that chiropractic is *"A health profession concerned with the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system, and the effects of these disorders on the function of the nervous system and general health. There is an emphasis on manual treatments including spinal adjustment and other joint and soft-tissue manipulation (WFC, 2024)."*

Originating in the American Midwest in the 1890s, the chiropractic profession has developed over the past 130 years. All 50 states and U.S. territories legally recognize chiropractic as a health profession. The growth of chiropractic within the U.S. has led to expansion globally, and now chiropractors practice in more than 100 countries in all world regions (Stochkendahl et al., 2019, WFC, 2025) (see Table 2.1).

Table 2.1 Countries where chiropractors practice.

World Region	Locations where chiropractors are present
Africa	Botswana, Burkina Faso, Cote d'Ivoire, Eswatini, Ethiopia, Ghana, Kenya, Lesotho, Mozambique, Mauritius, Namibia, Nigeria, Rep. of the Congo, Sierra Leone, South Africa, Sudan, United Republic of Tanzania, Uganda, Democratic Republic of the Congo, Zambia, Zimbabwe
South-East Asia	China, Chinese Hong Kong SAR, India, Indonesia, Japan, Malaysia, Philippines, Singapore, Republic of Korea, Chinese Taipei, Thailand, Vietnam
Middle East and the Eastern Mediterranean	Bahrain, Cyprus, Egypt, Iran (Islamic Republic of), Israel, Jordan, Lebanon, Libya, Morocco, Qatar, Saudi Arabia, Syrian Arab Republic, Türkiye, United Arab Emirates
Europe	Austria, Belgium, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Malta, Netherlands, Norway, Portugal, Russian Federation, Serbia, Slovakia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland
The Americas	Argentina, Bahamas, Barbados, Belize, Bermuda, Bolivia (Plurinational State of), Brazil, British Virgin Islands, Canada, Cayman Islands, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Jamaica, Leeward Islands, Mexico, Panama, Peru, Trinidad and Tobago, Turks and Caicos, United States of America and territories, Venezuela (Bolivarian Republic of)
Western Pacific	Australia, Fiji, Guam, New Caledonia, New Zealand, Papua New Guinea, Tahiti

Findings from this practice analysis provide essential information to those involved with or interested in chiropractic. Such stakeholders include those who are within or directly associated with the profession, such as chiropractors, chiropractic educators, students, accreditors, licensing boards, and companies and professional associations that support the profession. Other stakeholders, such as patients, other healthcare providers, regulators, and policy makers, can utilize this information to better understand the breadth and depth of chiropractic practice.

The primary purpose of a practice analysis is to obtain a profile of the chiropractic profession's practices. This information then assists in the preparation of valid assessment tools for chiropractic licensure and certification that are based on the knowledge and skills required of a licensed practitioner. In addition, the data collected in this practice analysis help to clarify the roles and responsibilities of chiropractors.

Practice analysis can also be an educational resource (NBCE, 2025). The amount of training and certification needed to become a licensed chiropractor is not common knowledge among the public (Wison, Swincer, & Vemulpad, 2007). This lack of understanding may potentially create barriers to access for those who would benefit from chiropractic care. Thus, in addition to identifying essential information to be included in qualifying

examinations, a practice analysis may facilitate the distribution and uptake of accurate information about the profession.

2.2 Becoming a Doctor of Chiropractic

To practice chiropractic in the United States, several steps are required. First a chiropractor must complete a Doctor of Chiropractic (DC) degree through an accredited chiropractic training program. Next, the chiropractor must pass the National Board Examinations and any other exams and requirements mandated by the state in which they will practice. Additional requirements often include training and examinations on state laws governing chiropractic practice, ethics, and other features unique to each state law.

By law, licensed chiropractors are allowed to use the titles of "Doctor of Chiropractic" or, in some states, "Chiropractic Physician" once they complete a degree through a DC degree program (DCP) within the U.S. (NBCE, 2020). DCPs consist of a minimum of 4,200 hours of instructional time, which most students complete in about four years. DCPs undergo quality evaluation through the accreditation process, which considers the program and student standards that are set by the chiropractic profession in the U.S. (CCE, 2025a). The Council on Chiropractic Education (CCE) is recognized by the United States Department of Education as the national accrediting body for DCPs. The process and requirements are clearly described in the publicly available CCE Accreditation Standards documents. The purpose of the CCE is to promote academic excellence and to ensure the quality of chiropractic education. The CCE is also recognized by the Council for Higher Education Accreditation (CHEA) and is a member of the Association of Specialized and Professional Accreditors (ASPA) and the CHEA International Quality Group (CCE, 2025b).

It is important to note that "… CCE does not define or support any specific philosophy regarding the principles and practice of chiropractic, nor do the CCE Standards support or accommodate any specific philosophical or political position. The Standards do not establish the scope of chiropractic practice. They specify core educational requirements but do not otherwise limit the educational process, program curricular content, or topics of study. The processes of accreditation are intended to encourage innovation and advancement in educational delivery (CCE, 2025b)."

The CCE accreditation requirements include that DCPs focus on student learning outcomes that prepare chiropractors to serve as competent, caring, person-centered, and ethical DCs who are qualified to provide independent, quality, patient-focused care to individuals of all ages and genders. The training provides that chiropractors are able to: 1) provide direct access care that does not require a referral from another source; 2) establish a partnership relationship with continuity of care for each individual patient; 3) evaluate and establish a diagnosis; and, 4) manage the patient's healthcare and integrate healthcare services, which include treatment, recommendations for self-care, referral and/or co-management.

The CCE education standards and competencies ensure that graduates of U.S. DCPs are trained so that they may practice in any of the U.S. states and territories to the full extent of their scope of practice. Regardless whether the state's scope of practice is broad or narrow, all graduates of CCE-accredited programs have been trained in all necessary competencies.

Chiropractic programs have been developing since the first chiropractic school was chartered in 1897 (Johnson & Green, 2021; Johnson et al., 2022). The content and delivery of the programs continue to adapt as new chiropractic knowledge is discovered through research and other studies. As of March 2025, there are 18 DC degree programs at 21 locations (see Table 2.2) and 11 chiropractic residency programs that are accredited by CCE (CCE, 2025c). There are several DCPs and residencies in

various stages of development and accreditation as of the time of this writing.

Requirements to enter a DCP in the U.S. are typically 90 or more college credits and some states require a bachelor's degree before entering a chiropractic program (FCLB, n.d.). DCs in the U.S. have approximately 7-8 years of college education by the time they graduate from their chiropractic program.

In addition to graduating from a CCE accredited program, to practice legally in the U.S., chiropractors must successfully pass qualifying exams to demonstrate minimal competency in essential knowledge and skills required to deliver chiropractic care. Qualifying examinations are an important component of quality assurance (Green et al., 2020). The NBCE develops, administers and scores standardized exams that assess examinees' knowledge, higher-level cognitive abilities and problem-solving that include basic sciences, clinical sciences, clinical competency, practical skills, and physiotherapy (NBCE, 2025a). These standardized exams serve to ensure that regardless of where a chiropractor went to school or was licensed, he or she has demonstrated minimal competence in the knowledge and skills related to practice including diagnosis, diagnostic imaging, principles of chiropractic, associated clinical sciences and chiropractic practice (NBCE, 2025b). Boards in every U.S. jurisdiction accept or require NBCE examinations as part of their licensing criteria (NBCE, 2025c).

This practice analysis captures information about what DCs are doing in clinical practice, and the NBCE then applies this information when constructing the examinations. Understanding what chiropractors do in practice is fundamental to the function of the chiropractic profession. This information impacts what content and training methods education programs need to consider. Chiropractic training impacts what scope chiropractors are allowed to practice, and ultimately training impacts the safety and effectiveness of the care that chiropractors provide. Information from a practice analysis guides training, and training guides practices. It is through this lens that we can describe the development of the chiropractic profession and its relevance to global healthcare.

Table 2.2 As of March 2025, DCPs accredited by the CCE.

Chiropractic Program	Location
Campbellsville University	Kentucky
Canadian Memorial Chiropractic College	Ontario, Canada
Cleveland University - Kansas City	Kansas
D'youville University	New York
Keiser University	Florida
Life University	Georgia
Life Chiropractic College West	California
Logan University	Missouri
Southern California University of Health Sciences	California
National University of Health Sciences	Illinois and Florida
Northeast College of Health Sciences	New York
Northwestern Health Sciences University	Minnesota
Palmer College of Chiropractic	Iowa and Florida
Parker University	Texas
Sherman College of Chiropractic	South Carolina
Texas Chiropractic College	Texas
University of Bridgeport	Connecticut
Universidad Central Del Caribe	Puerto Rico
University of Western States	Oregon

2.3 Competencies

Professional competencies are learned initially in the DCP and then, through life-long learning, they continue to be enhanced as they are applied in clinical practice. These core competencies are assessed by the DCP and in a standardized manner by the NBCE to assure the standards of minimal competence are met. For clinical competencies to be developed, fundamental knowledge competencies must first be mastered, and then incorporated with functional competencies, behavioral competencies, and values and ethical competencies.

The following professional chiropractic competencies were identified by a scoping review of chiropractic education literature (Johnson et al., 2025).

2.3.1 Knowledge and Cognitive Competencies

- Knowledge of chiropractic (for example, principles, theories, history, philosophy of chiropractic, how chiropractic fits into the healthcare system, etc.).
- Knowledge of normal structure and function (for example, anatomy, physiology, biomechanics, biology, biochemistry, immunology, genetics, microbiology, health-related biopsychosocial factors, foundational knowledge, etc.).
- Knowledge of abnormal structure and function (for example, pathology, dysfunction, disease process, microbiology, harmful biopsychosocial factors, foundational knowledge, etc.).
- Knowledge of individual and population health (for example, determinants of health, disease prevention, health promotion, public health, nutrition, physical activity, injury prevention, etc.).
- Knowledge of evaluation (for example, the information needed for patient assessment, neurology, orthopedics, clinical findings, patient management, diagnostic tests, diagnostic imaging, laboratory tests, clinical evaluation, etc.).
- Knowledge of chiropractic care (for example, information related to safety and effects of chiropractic care, manipulation, modalities, management, supportive active and passive treatment methods, etc.).
- Knowledge of patient needs (for example, characteristics of patient choices/needs, values, diversity/equity, pain, healing process and relationships, etc.).
- Knowledge of sub-populations (for example, people with urgent health concerns/emergencies, pediatrics, geriatrics, sports, men's/women's health, workers, etc.).
- Knowledge of research and science (for example, fundamental concepts about critical appraisal and application of research and science related to healthcare, etc.).
- Knowledge of healthcare systems (for example, understanding how chiropractic functions within the healthcare system, clinical impacts and implications of patients with concurrent health conditions, treatments used by other health professions, and other factors that may impact chiropractic care, etc.).

2.3.2 Functional Competence

- Demonstrate assessment (for example, patient-relevant history, examination, order/refer tests such as laboratory tests, diagnostic tests, referal to other providers, etc.).
- Demonstrate clinical reasoning skills (for example, formulate diagnosis/clinical impression, differential diagnosis, make a therapeutic decision, estimate prognosis for the patient, etc.).
- Demonstrate patient management (for example, develop/implement a management plan, estimate prognosis, monitor patient response to care, coordinate care, referral, etc.).
- Demonstrate patient communication (for example, report of findings, obtain patient consent, discuss patient values, expectations of treatment plan, prognosis, etc.).

- Demonstrate manual therapies (for example, adjusting/manipulation/mobilization, manual soft tissue therapies, etc.).
- Demonstrate supporting therapies (for example, modalities, exercise/active therapies, rehabilitative therapies, etc.).
- Demonstrate patient therapeutic education (for example, provide patient instructions about self-care, home exercises, diet/nutrition, injury prevention, ergonomics, etc.).
- Demonstrate safety in the clinical environment (for example, patient safety, provider safety, hygiene, risk reduction in the clinical setting, etc.).
- Demonstrate critical thinking (for example, evidence-informed decision-making skills, evidence-based practice skills, obtain and evaluate new scientific information, including the patient's values and beliefs in the clinical decision, and apply new information to the clinical practice setting, etc.).
- Demonstrate practice management skills (for example, use current technology, effectively run a practice, record keeping, patient confidentiality/privacy, etc.).

2.3.3 Behavioral Competence

- Demonstrate personal competence (for example, intrapersonal self-awareness, self-care, self-improvement, acquisition of new knowledge and skills, technology and information literacy, lifelong learning skills, etc.).
- Demonstrate interpersonal/patient competence (for example, person-centered care, empathy, cultural competence/diversity, professional/caring interpersonal communication and behaviors with patients, etc.).
- Demonstrate professional competence (for example, interpersonal communication and collaboration with other providers, team-based care, etc.).

2.3.4 Values and Ethical Competence

- Demonstrate professionalism (for example, on a personal level demonstrate honesty, integrity, ethics, leadership, etc.).
- Demonstrate practice and professional competence (for example, on a professional level, participate in regional jurisprudence, legal, regulatory compliance, licensure, self-regulation of the profession, etc.)

The above competencies are combined and applied in clinical practice, which results in chiropractic professional competence.

2.4 Description of Chiropractic Care

A DC begins care with a new patient in a manner similar to other healthcare providers. Patients will complete documents pertaining to the reason for their visit, health status, lifestyle habits, medications, and other general health information. This is followed by the chiropractor talking with the patient to obtain more detailed information. For new patients, taking a comprehensive health history is important for the doctor to establish a clear picture of the patient's overall health status. It helps the doctor understand the patient's concerns and reasons for seeking chiropractic care. Additionally, it allows the doctor to identify any potential reasons why certain procedures may need to be modified or avoided during treatment. Chiropractors ask about risk factors that the patient may have, which may include co-occurring conditions, physical activity, smoking, sleep hygiene, exposure to manual labor, and poor ergonomic environment

Next, the chiropractor performs a thorough examination of the region of the patient's chief complaint. The examination focuses on problems that the patient may have with their bones, joints, nerves, and muscles. While DCs are known for their expertise in spine care, they frequently assess other neuromusculoskeletal structures. Sometimes it may be necessary for the chiropractor to examine other body systems or parts, of which they are qualified by training to perform (Haldeman, 2005).

The DC typically assesses the patient's spine and other areas of concern for health and function. The examination may include assessment of posture,

walking gait, and ranges of motion, touching (i.e., palpating), neurological tests, and other assessments. Understanding the patient's biomechanics is a critical part of chiropractic care as it helps to identify the most appropriate chiropractic procedures that may be used to care for the patient (Haldeman, 2005).

Following the examination, the chiropractor discusses with the patient the findings from the history, examination and options for care. If further testing is needed, the doctor may order tests such as diagnostic imaging, electrodiagnostic studies, laboratory tests, or other procedures. During the process of informed consent, the chiropractor will discuss with the patient what care is appropriate, the benefits and potential risks of care, the timeframe expected for a course of treatment, and when a re-examination will occur. In this process, the patient and chiropractor mutually come to an agreement on how the care will proceed. At the end of that conversation, usually the patient and the doctor sign a form documenting that informed consent was provided. The chiropractor may also recommend that the patient's concern would best be managed by another healthcare provider or co-managed in partnership with another provider (Haldeman, 2005).

Periodically throughout the treatment process, the chiropractor will perform a re-assessment to ascertain what progress is being made to determine if the care plan should be continued, modified, or terminated. If the patient has achieved the therapeutic goals, then he or she may be discharged from care and encouraged to continue the healthy lifestyle behaviors and choices made during the course of care. Some patients may elect to continue with ongoing periodic chiropractic care. These patients may have found that periodic care improves their quality of life, helps minimize pain, or helps them maintain good function. The frequency of these visits will vary, based on the patient's needs.

Chiropractors often use a procedure called an "adjustment", which is also known as "manipulation." There are many forms of these techniques. A number of chiropractic techniques involve a skillfully controlled quick force delivered by hand to the joints of the spine and extremities. Other chiropractic adjusting methods have been developed to provide a variety of treatment systems and procedures that allow a chiropractor to adapt to various patient presentations that may necessitate using an alternative technique. Some chiropractic techniques use mechanical instruments to assist in performing manipulation. Hand-held instruments, special tables, and other tools are often used as part of chiropractic care. Chiropractors have endeavored for decades to develop these techniques and there are more than 100 chiropractic techniques that have been created since the profession began (Bergmann & Peterson, 2011). Most chiropractors use several chiropractic techniques in practice to provide the most fitting care for patients. Chiropractors spend years training in their art and concentrate a great deal of their education on perfecting the delivery of a skillful adjustment. Chiropractors have the most training in manipulation of any healthcare provider and it has been estimated that chiropractors provide more than 90% of manipulative care in the U.S. (Shekelle, et al., 1992).

In addition to chiropractic adjustment/manipulation procedures, there are other manual techniques, such as joint and soft tissue mobilizations, that are commonly used by chiropractors (Bergmann & Peterson, 2011; Hammer, 2007). Some patients may benefit from one or more supplemental physiological modalities, such as electrical stimulation, hot and cold applications, and traction. Many chiropractors also include the application of different types of bracing and taping. The application of rehabilitation procedures and therapeutic exercise are important in complementing the effects of joint and soft tissue procedures (Liebenson, 2007). Doctors of Chiropractic frequently use such procedures in practice and

recommend a variety of supportive exercise routines to patients (Christensen, Hyland, Goertz, & Kollasch, 2015).

Doctors of Chiropractic encourage their patients to assume responsibility for their health and well-being as part of the chiropractic holistic philosophy and model of care. Dietary guidance, health risk avoidance advice, and wellness counseling may be included in the management of patient health concerns. Chiropractors also provide advice and education to patients about many topics, including safe lifting techniques, ergonomics, sleep hygiene, stress management, routine physical activity, and other needs (Christensen, Hyland, Goertz, & Kollasch, 2015).

2.5 Conditions Commonly Seen

The most common conditions for which patients seek chiropractic care tend to be neuromusculoskeletal in nature, which are conditions with associated signs and symptoms related to the nervous, muscular and/or skeletal systems (Hegmann & Moore, 1998; Schipholt et al., 2021). Back and neck pain are commonly seen conditions; however, pain is a symptom, not a diagnosis. Back and neck pain typically will be concurrent with other patient conditions, such as those associated with specific tissues (disc, nerve root, muscles.) (Figure 2.1)

2.6 Biopsychosocial and Holistic Approach

Chiropractic has traditionally embodied the biopsychosocial model, which considers multiple factors that can affect a person's health. This model contrasts with the biomedical model, which focuses on disease and disease processes. The chiropractic profession in the United States continues to approach health in a holistic manner, to serve chiropractic patients and the public. U.S. chiropractors are trained to provide care throughout the lifespan and chiropractors may provide care to people of all ages. Thus, relevant age-related health issues are considered during patient care. During each life phase, there are unique health challenges and risks. Most chiropractors approach patient care holistically and recognize that there are various biopsychosocial factors that influence health. This holistic approach encourages chiropractors to not only consider symptoms that patients experience, but to also look for the cause of the problem and potentially associated health behaviors of co-occurring conditions. Examples of biopsychosocial risk factors associated with spine health are shown in Figure 2.2.

Patients often present for chiropractic care with back or neck pain, but may seek chiropractic care for other reasons. And even when a patient has back pain, the patient is likely to have other health concerns or may be unaware of other

Pain and dysfunction	Pain and postural syndromes	Congenital or developmental deformity	Trauma	Neurogenic or Joint pain
• Acute neck and back pain • Chronic neck and back pain • Spinal and extremity subluxation/joint dysfunction	• Sacroiliac, pelvic, sacral, or coccyx pain • Myofascial pain • TMJ syndrome • Thoracic outlet syndrome • Carpal or tarsal tunnel syndrome • Tendinopathy • Bursitis or synovitis • Postural syndrome • Torticollis	• Scoliosis • Hyper/hypolordosis of cervical or lumbar spine • Hyperkyphosis of cervical or lumbar spine	• Injuries • Sprain of any joint • Muscle strain • Whiplash, whiplash associated disorder	• Intervertebral disc disease/syndrome • Radiculitis or radiculopathy • Osteoarthritis or degenerative joint disease • Headaches

Figure 2.1. Conditions that a majority of chiropractors report managing over 50% of the time (2024 data).

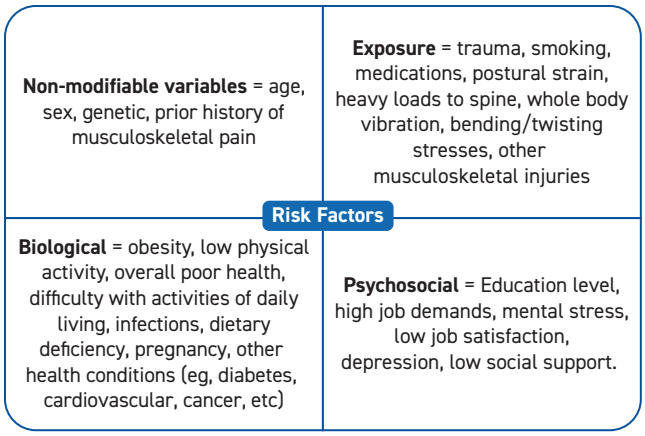

Figure 2.2. Risk factors, associations, and comorbidities that should be considered in spine care programs (Green et al., 2018). Modified figure and reproduced with permission from Brighthall.

existing health conditions. With the rising average age of the global population and the burgeoning number of chronic conditions, it is expected that a growing number of people will seek care while possessing multiple health concerns. Therefore, healthcare providers, even if they specialize in one area, need to be aware of all their patients' concurrent health conditions. Because chiropractors see a cross-section of the American population, the odds are very likely that patients will have one or more of the top causes of mortality in the U.S (see Figure 2.3). Thus, chiropractors should be able to recognize these, and other, conditions requiring referral for the expertise of other healthcare providers (collaborative and interprofessional care).

Many chiropractors not only aim to address the pain concerns of the patient but also counsel them on biopsychosocial risk factors and associated conditions that may have an effect on the chief complaint and overall health. For example, when managing people with mechanical, uncomplicated spine pain, chiropractors should be aware of various risk factors for back pain. These include lack of exercise, smoking, obesity, and repetitive lifting and twisting. Doctors of Chiropractic also need to be cognizant of health conditions that can potentially affect the success of care. Some associations between health behaviors and conditions that are relevant to conditions that chiropractors commonly see include the following examples:

- There is an association with back pain and smoking. Thus, for chiropractors who are managing a patient who smokes and has back pain, intervention programs could be suggested to help the patient to stop smoking (Ferreira et al., 2023).

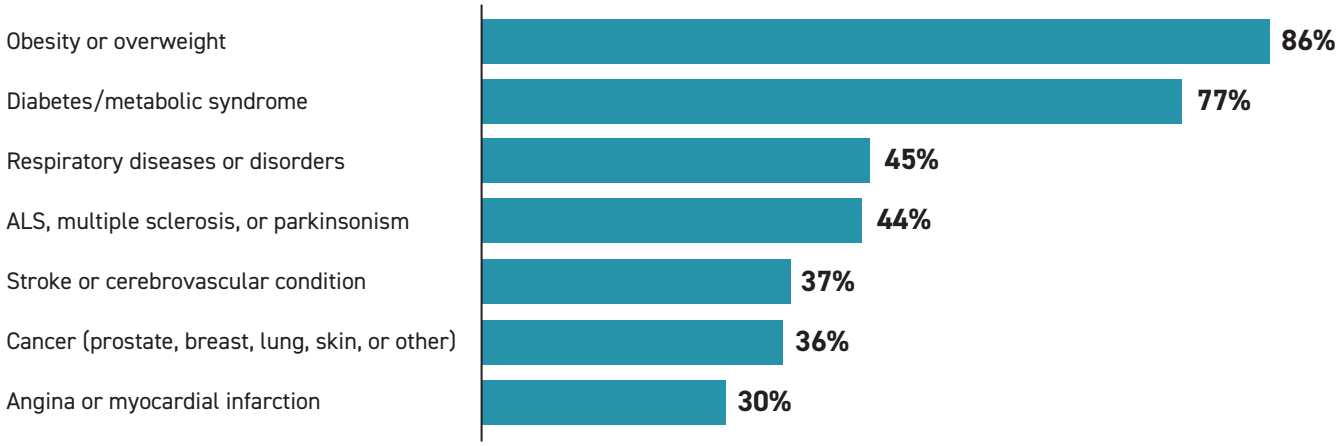

Figure 2.3. In 2024, chiropractors reported that they routinely identified or were aware of patients with seven conditions that are included in the top 10 causes of death for adults in the U.S. (2024 data from this practice analysis (NCHS, 2022).

- Depression and anxiety have strong associations with spinal pain, with depression and spinal pain having been shown to be causal for one another (Yang et al., 2023). Obtaining appropriate behavioral healthcare in addition to chiropractic care when a patient has spinal pain may be an important part of the patient's recovery.
- Spine health is associated with osteoporosis and vertebral fractures (Green et al., 2018) (Green et al., 2018). Thus, methods that help to prevent bone loss, such as exercise and diet, could be suggested to those who are at higher risk.
- Occupational factors, such as work ergonomics, are risk factors for back pain and spine injury (Ferreira et al., 2023). Chiropractors may offer ergonomic evaluations and education about proper work posture and activities aimed at preventing reinjury or a future injury.
- Pain in muscles and associated structures has been associated with lack of exercise, mood state, and diet (Shah et al., 2015). Chiropractors may assist patients with recommendations for improvements in nutrition, positive outlook, and exercise.

Various treatment approaches that chiropractors use are recognized for managing spinal pain syndromes, which are major health burdens. However, similar to other health professions, the responses of some health conditions to chiropractic care have not yet been fully researched. Thus, at this time it is unknown what impact chiropractic may have on a wide variety of health issues.

2.7 Chiropractic Care and Health

Chiropractic care tends to focus on patient health by recognizing that there is a health continuum, which ranges from disease to health. Approaching patient care along the continuum requires various strategies (see Figure 2.4). Depending on a patient's needs, chiropractors may employ one or more of the following care strategies in addition to in-office treatment procedures:

1. Recommendations for healthy lifestyle, nutrition and diet, posture, exercise/physical activity.
2. Education on prevention of reinjury or future injury.
3. Connecting the patient with healthcare services from other providers.
4. Identification of serious or life-threatening conditions and referral of the patient to urgent or medical care.
5. Promotion of self-care, reduced dependence on pharmaceuticals or passive care for pain.
6. Avoiding medicalization of care (i.e., someone perceiving a problem when there is not one or overuse of treatment, harmful treatments such as bed rest for back pain, etc.)

2.8 Variance in Practice

Some may wonder why there is variation in chiropractic practices within the profession and from state to state. The variances in scope of practice can be explained by the development process and battles for state licensure in the U.S. beginning in the late 1800s and ending in 1974, a period of more than 80 years. Obtaining recognition occurred slowly and was fought on a state-by-state basis against a variety of opponents. Conventional medicine was the dominant established health profession and the primary political medical body, the American Medical Association, fought to control/monopolize healthcare (Johnson & Green, 2021a,b,c). Chiropractors faced decades of legal battles to have chiropractic recognized as a profession and to become licensed (Johnson & Green, 2021b,c).

Thus, the root cause of the variation does not lie solely within the chiropractic profession but has been heavily influenced by external social and political factors, which have been described in detail elsewhere (Johnson & Green, 2021 a-h). Suffice it to say, the chiropractic profession has

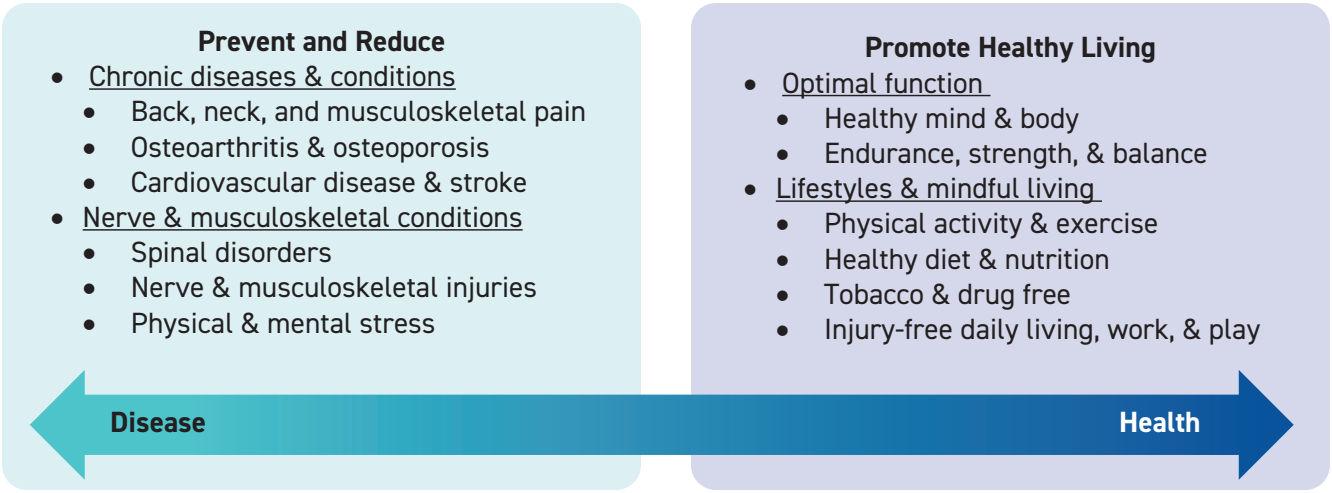

Figure 2.4. Continuum of disease to health often encountered in chiropractic practice developed in conjunction with the Chiropractic Healthcare Section of the American Public Health Association. Reproduced with permission from Brighthall.

fought persistently for recognition and equity. Regardless of the differences that are present, the current practice analysis captures the breadth and depth of the practices within the profession.

2.9 Payment for Services

Chiropractors may be paid for their services in many ways. Direct payment from the patient to the DC is a common method of remuneration. Most chiropractors accept reimbursement from one or more indirect payers. Chiropractic care is reimbursed by Medicare (U.S. Centers for Medicare & Medicaid Services, 2019). In some states, services are also reimbursed by Medicaid and private insurance plans. Based on a recent study of more than 117,000 cases demonstrating the benefits and cost savings afforded by chiropractic care for low back pain (Carey et al., 2019), a major healthcare benefit administrator for employer-sponsored healthcare plans has allowed direct access to chiropractic care for a defined number of visits. This means that patients do not need a medical doctor's referral to see the chiropractor for treatment. The Federal Employee Health Benefit Program and the Federal Employee Worker's Compensation Program provide for federal employee chiropractic care and all 50 states have authorized the provision of chiropractic care under state workers' compensation laws (American Chiropractic Association). Most state workers' compensation systems include chiropractic care. In addition, most automobile insurance policies provide reimbursement for chiropractic care. Reimbursement for services to veterans receiving care outside of facilities operated by the Veterans Administration is also available (Lisi & Brandt, 2016).

2.10 Practice Types and Environments in the United States

In general, chiropractors have a wide range of practice interests, but primarily focus on spine care, general health, and holistic health. (see Figure 2.5)

After graduating from a chiropractic program, some chiropractors seek additional training in areas of special interest. This might include procedures, such as learning additional chiropractic techniques, acupuncture/dry needling, or other procedures. Advanced training in skills and knowledge unique to patient groups, such as children or athletes may be sought out. Other topics for additional training include radiology,

nutrition, orthopedics, neurology, and others. Decades ago, these programs were typically offered as postgraduate training, leading to a certificate or diplomate. While these certifications still exist, many programs have become more complex. For example, residencies have been developed, and some programs have accredited master's degrees in various topics such as pediatrics or nutrition.

2.11 Solo Practitioner

The majority of DCs practice independently in solo practice or have an associate Doctor of Chiropractic working within the same office. In this environment, chiropractors are self-employed and assume management of the practice, often with the assistance of an office manager. In independent practice, chiropractors establish their own office hours, workflows, and practice styles. Since they determine their work hours, they may be flexible and arrange appointments to suit their patients and their personal needs. In independent practice, the chiropractor assumes the financial responsibility to generate a viable business commensurate with the goals that the chiropractor has for practice growth. Chiropractors in independent practice are also responsible for acquiring and maintaining the physical space and equipment needed to practice. Some practitioners may elect to use local radiology, laboratory, and other services instead of managing these processes within the practice. In independent practice, chiropractors must also develop working relationships with other healthcare providers in the community for when collaborative or referral-based care is necessary.

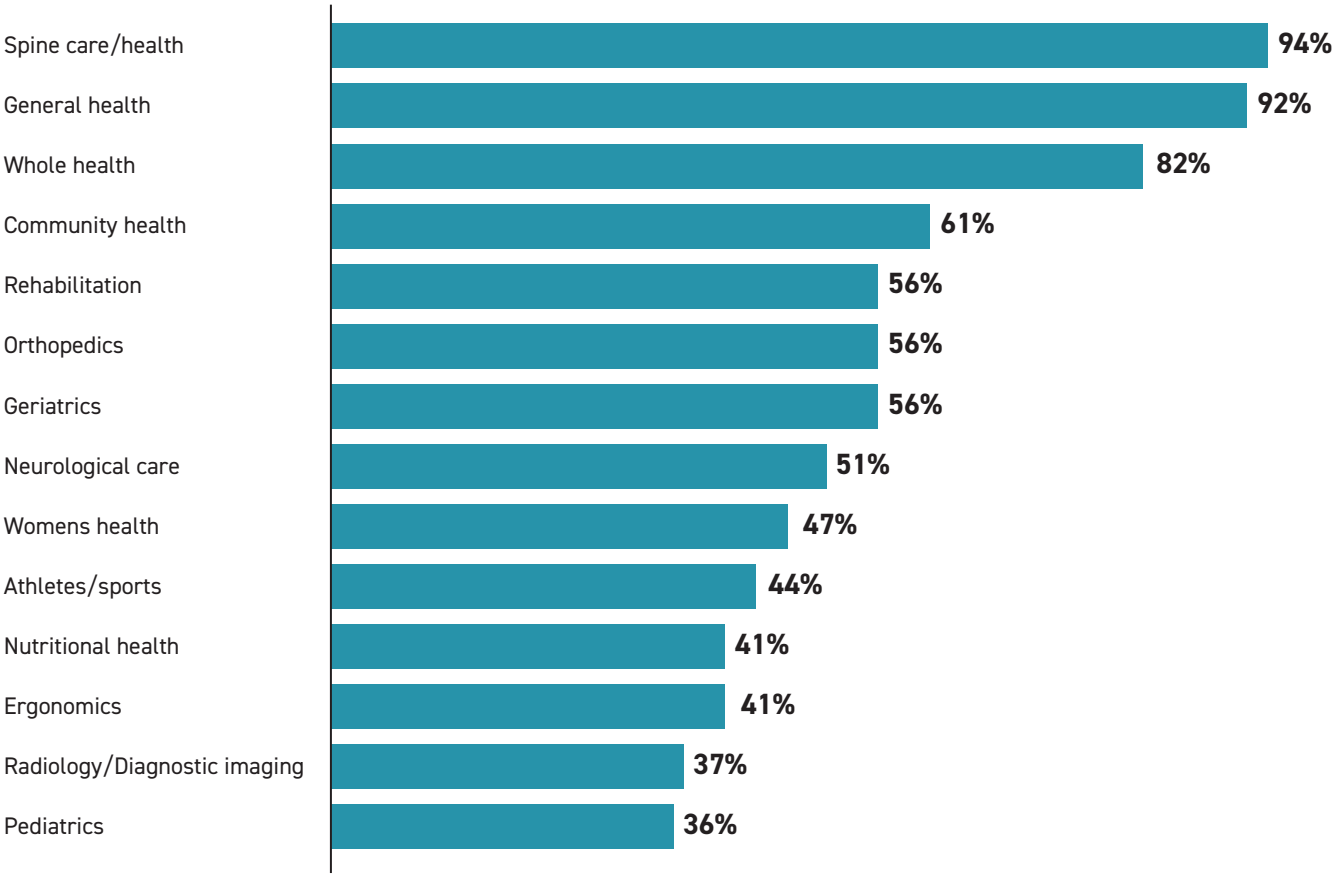

Figure 2.5. Most common areas of practice focus (mostly and somewhat) reported by Doctors of Chiropractic in 2024

2.12 Group Practice

Group practices include several chiropractors working together in the same clinic or set of clinics. Chiropractors in the group may be the proprietor of the practice, partner, or hired associate. In these clinics, each chiropractor may specialize in a particular type of care or chiropractic specialty, providing patients with access to complementary methods. Some group practices include an interprofessional model where chiropractors work together with other healthcare providers. In these environments, chiropractors may work with medical providers, physical therapists, nurse practitioners, physician assistants, acupuncturists, massage therapists, or others (Salsbury, Goertz, Twist, & Lisi, 2018; Bronston et al., 2015)

2.13 Worksite Health Centers

Providing healthcare to employees at health centers located on the site of employers has been a model of care for many years. With the advent of the Affordable Care Act, the popularity of these health centers has risen (Brugh & McCarthy, 2014). Approximately one-third of companies with 5,000 or more employees offer worksite clinics. At these facilities, employees, and sometimes the dependents of employees, have direct access to a number of healthcare providers and services (Fuld & Company, 2009). The integration of chiropractors into such health centers is a recent trend, as benefits managers at a wide variety of companies recognize the competitive advantage that offering onsite chiropractic care offers to employees. Especially in the technology sector, employees may decide to work for a company based upon the offerings of the worksite health center (Lagnado, 2018). For many companies, musculoskeletal problems are a large part of the health concerns for the company work force. Chiropractors fit nicely into this interprofessional environment, providing conservative musculoskeletal care. Chiropractic worksite services have been shown to reduce overall healthcare utilization, radiology procedures, and musculoskeletal medication (Kindermann, Hou, & Miller, 2014; Krause, Kaspin, Gorman, & Miller, 2012).

2.14 Hospital-based Chiropractic Care

Chiropractors have provided care in hospital environments since the 1980s but the inclusion of chiropractors in public, military, and veteran hospitals has grown significantly since the middle of the 1990s (Pelletier, Astin, & Haskell, 1999). Studies have shown that the offering of chiropractic services has provided an alternative and drugless form of musculoskeletal care that is in demand and widely utilized by beneficiaries (Orlin, Didriksen, Hagen, & Sorfonden, 2015; Branson, 2009; Carmichael, 1988).

The first major federal hospital inclusion of chiropractic care occurred in 1995 when the U.S. Military Health System started including Doctors of Chiropractic in an integrated manner on medical staffs (Birch & Davis Associates, 2000). Military Health Services chiropractic clinics rapidly began to face severe delays in access to care, due to the popularity of chiropractic service among military members (Green, Gilford, & Beacham, 2020). By 2008, there were over 100 chiropractors providing care in 49 military treatment facilities (TRICARE Management Activity, 2008). Doctors of Chiropractic have been integrated into many different types of military health service lines, including sports medicine, orthopedics, comprehensive casualty care, and others (Green et al., 2016).

Following the successful inclusion of chiropractic care into the Military Health System, the U.S. Veterans Health Administration began including chiropractic care into veteran hospitals in 2004. Chiropractors are fully integrated in the Veterans Health Administration, caring for patients in healthcare teams and serving in leadership roles (Lisi & Brandt, 2016; Johnson et al., 2012). Chiropractors are in demand in these hospital and hospital-based clinics, providing 160,000 office visits or more each year at more than 65 clinics

(Lisi & Brandt, 2016). Chiropractors have been successful in this environment and began producing research, training students, and developing residency programs within a few years after their inclusion (Dunn, Green, & Gliford, 2009; Green & Dunn, 2021).

2.15 Other Careers in Chiropractic

While providing full-time patient care is the most common professional choice that chiropractors make, there are other important roles that they fill. Many have devoted their careers serving as educators in chiropractic training programs as faculty members or administrators. These doctors fill a critical role in the profession and may further their education by obtaining additional graduate degrees. In addition to teaching, running programs, and other roles, educators can be found producing scholarly papers, presenting research at conferences, writing books, and providing continuing education for other chiropractors (Mrozek, Till, Taylor-Vaisey, & Wickes, 2006).

Some DCs make a choice to become chiropractic researchers, an essential and very important role for the profession. Most chiropractors that conduct research also possess master's and doctorate degrees in a wide range of topics. The growing number of researchers provides the bulk of publications used to supply evidence for evidence-based chiropractic practice. These researchers often specialize in specific areas of research, such as epidemiology, clinical trials, public health, healthcare utilization, cost-effectiveness, basic sciences, chiropractic procedures, and a host of other topics. Researchers and educators have joined together in organizing the most important annual chiropractic academic conference in the U.S. where hundreds of scholarly papers and workshops are given to advance the science, art, and philosophy of chiropractic (Herrin, Green, & Johnson, 2011; Green, Jacobs, Johnson, & Phillips, 2011; Johnson, 2007; Johnson & Green, 2010). Chiropractic researchers have also become leaders not only in chiropractic research, but in the field of spinal and musculoskeletal research in general. Chiropractors are involved in organizing and presenting at some of the most important international research conferences on the spine, rehabilitation, musculoskeletal care and public health (Haldeman & Chapman-Smith, 2014).

There are many additional roles that chiropractors fill. Some work for federal and state agencies, insurance companies, benefit plan administrators, university faculty, the World Health Organization (WHO), and other entities. Finally, some DCs enjoy serving in multiple capacities and may split their professional time between practice, education, research, and other combinations.

2.16 Professional Traits and Responsibilities

The chiropractic profession was founded on having a science (body of knowledge), art (practice), and philosophy (ways of knowing). Thus, science is an integral part of the profession. The concept of evidence-based practice is a counter to eminence-based medicine, which is doctor-centered and opinion-based (Johnson et al., 2018). Evidence-based practice includes applying best evidence with clinical experience and including the patient's values and goals. Thus, evidence-based practice is not only about evidence, but must include the clinician's expertise and the patient. Thus, it is person-centered care (see Figure 2.6).

Responsibilities of a health professional include beneficence, non-maleficence, autonomy, justice, and professionalism (WFC, 2022). Chiropractors typically pledge or take an oath at the beginning of clinic or during graduation in which they promise to put the best interests of the patient first, resulting in person-centered care (Deltoff, 2023).

WHO states that "Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with evidence-based professional knowledge (WHO, 2025)." That

quality of care is comprised of seven primary components: effectiveness, safety, people-centeredness, timeliness, equity, integration, and efficiency.

According to the World Federation of Chiropractic (WFC, 2024), chiropractors are responsible for providing

- effective and evidence-based healthcare services to those who need them;
- safe chiropractic care that avoids harmful methods or practices;
- people-centered care that focuses on the best interests of individuals, taking into account their preferences, needs, and values;
- timely care, either directly or in collaboration with other providers, to reduce waiting times and avoid harmful delays;
- equitable care that serves patients regardless of their traits such as sex/gender, ethnicity, geographic location, or other diversity or socio-economic traits;
- integrated and collaborative care within healthcare systems so that patients may access the appropriate health services throughout their life course; and
- efficient care that maximizes available healthcare resources and at the same time avoids waste.

2.17 Challenges

Some have criticized the chiropractic profession because scope of practice varies from one state to another (Chang, 2014). However, as pointed out previously, the fault for this variance is not under the control of the profession at large. Changing licensure to enable a national scope of practice and licensing law is a major challenge that the

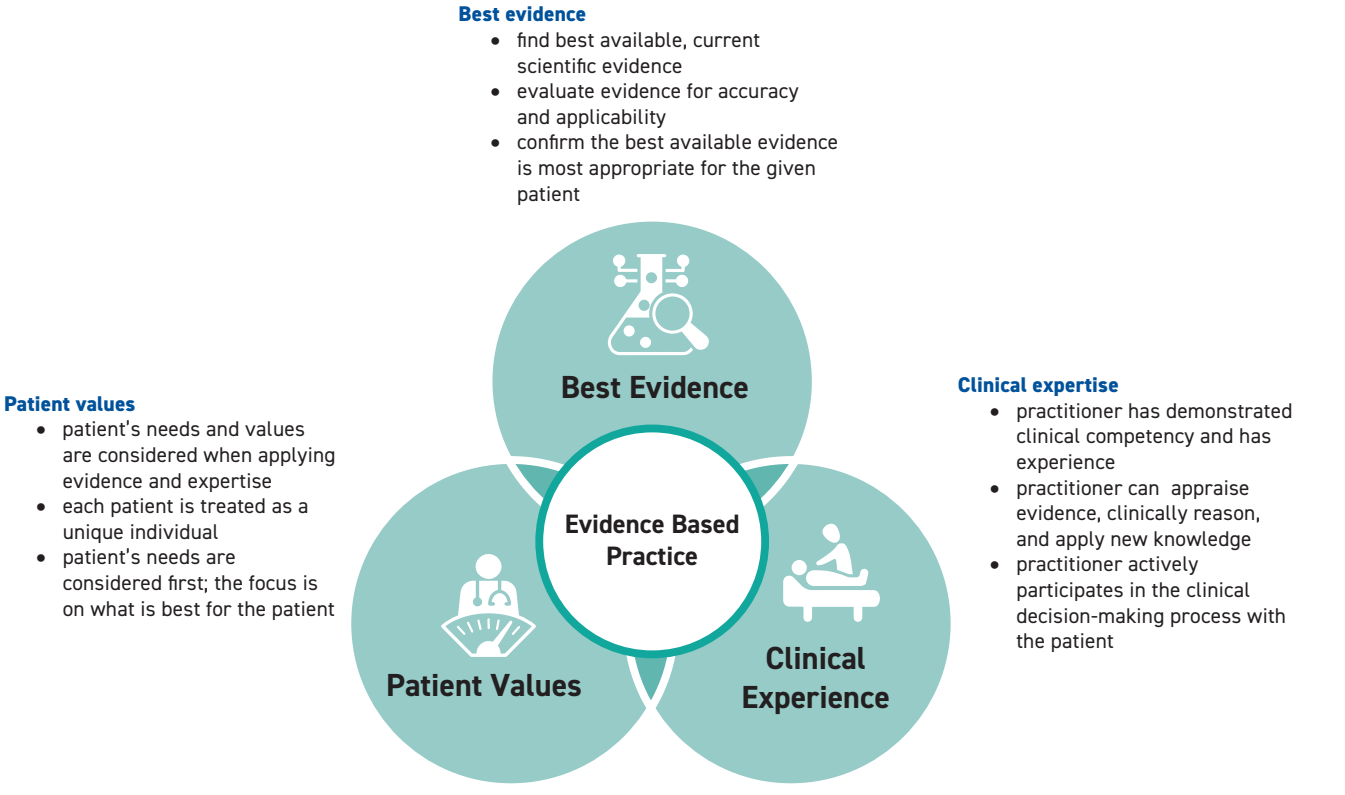

Figure 2.6. A visual representation of evidence-based practice, which only occurs when all 3 components are combined: best evidence, clinical experience, and patient values. (modified and reproduced with permission from the Journal of Manipulative and Physiological Therapeutics (Johnson, 2008).

profession faces. The logistics of converting 50 states and all U.S. territories into one jurisdiction is a monumental task. However, succeeding in this task would enhance the portability of chiropractic providers, create a more consistent standard of care, help level the field in education, and reduce costs associated with licensure and insurance coverage.

Variation in chiropractic practices can be confusing to the public. Chiropractic has a core set of professional and clinical competencies, as determined by the CCE, and all who are licensed complete qualifying examinations. These requirements notwithstanding, each graduate is allowed to seek out their own unique practice style and approach when providing chiropractic care. Thus, chiropractic practices are not homogenous, and probably never will be. However, this is no different from other health professions where individuals incorporate a certain amount of art and personal style in their practices. For example, a surgeon may prefer one surgical approach over another or a physical therapist may focus on treating athletes rather than wound care. The variety and breadth of practices provide a benefit to the public in that patients may select the provider that best fits their needs, values, and personality instead of being force-fit into a one-size-fits-all situation. Chiropractic is no different. Variety and breadth allow chiropractors to seek ways to better serve the public and to best fit their interests and style. Conversely, chiropractic has work to do in relaying a consistent message to the public and other health professionals about its core values and competencies.

Return on financial investment in chiropractic education is another challenge the profession faces in the U.S. Most people entering the chiropractic profession envision an emotionally rewarding career of compassionately helping others. Admirable as this may be, the financial realities of obtaining a degree are considerable. Like other healthcare professions, the cost of education has risen dramatically over the past several years. Students must weigh the debt to potential income ratio that they will experience upon graduation (Schut, Lawrence, & Bejarano, 2024). The profession will need to determine its destiny by deriving strategies to keep chiropractic education within the range of affordability that can be paid off once students graduate and become practitioners.

Will the profession have a large enough workforce to meet the demand for services? The U.S. Bureau of Labor Statistics has projected a 10% increase in the employment of chiropractors by 2033 (U.S. Bureau of Labor Statistics, 2025). Yet, data from the 2024 survey show that approximately 60% of current practitioners are either eligible for retirement or will be by 2035. Viewing the aging U.S. chiropractic workforce concomitantly with the challenges that prospective chiropractic students face in paying for their education, the profession may have a workforce shortage. This is unfortunate, as the opportunities for chiropractors are better than ever. The profession must look at how it can manage its workforce to position itself for the opportunities on the horizon.

2.18 Future Trends

As we look to the future, we offer possible trends in data that may shape the healthcare landscape for the chiropractic profession in 2034. These are predictions based in part on the data obtained for the *Practice Analysis of Chiropractic 2025*.

2.18.1 Demographics

As the population of the U.S. transforms, the younger generations entering chiropractic programs will mirror this transformation, resulting in a more diversified chiropractic workforce. The ratio of male to female chiropractors will begin to approach balance. (Figure 2.7) Racial and ethnic representation will also broaden. (Figures 2.8 and 2.9) Values and career goals for each successive generation will change. For example, those in generation Z (born 2001 to 2020) are described to be motivated by diversity, personalization, individuality and embrace technology (Purdue Global, n.d.).

Additionally, as the U.S. population becomes more racially and ethnically diverse, there will be greater demand for patients to find healthcare providers that share their values and meet their healthcare needs.

2.18.2 Patient Access and Utilization

As more people become aware of and appreciate the importance of musculoskeletal health, there will be an increased awareness of the health benefits of chiropractic care. A future trend may be that more people will be aware that they do not need to wait for pain before seeking care. For example, in the U.S. it is estimated that approximately 60% of adults consulted a dentist in the past year (Cha & Cohen, 2022). Those who seek dental care do not necessarily wait for their teeth to become painful or to have cavities before making a dental appointment. As the WHO definition of health states, "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 1948)." It is estimated that 14% of adults report receiving chiropractic treatment in the past year (Gallup, 2015) and this percentage may grow. With the increased recognition of the expertise that chiropractors possess in managing musculoskeletal concerns, their presence within integrated healthcare settings will continue to rise. Access to chiropractic services will continue to improve. In the future, more people will become aware of the importance of musculoskeletal function and health and not look to chiropractic care solely as a means to reduce spine pain, but also to improve health, function, and quality of life.

2.18.3 Technology

Technology in healthcare continues to evolve and many in the chiropractic profession have embraced these changes. Within the past five years, participants in higher education and healthcare have been challenged to rethink how education and healthcare are delivered, while improving access and reducing costs (Chiropractic Educators Research Forum, 2022; Green et al., 2020; Huybrecht & Conboy, 2022; Roytman et al., 2021). Technology

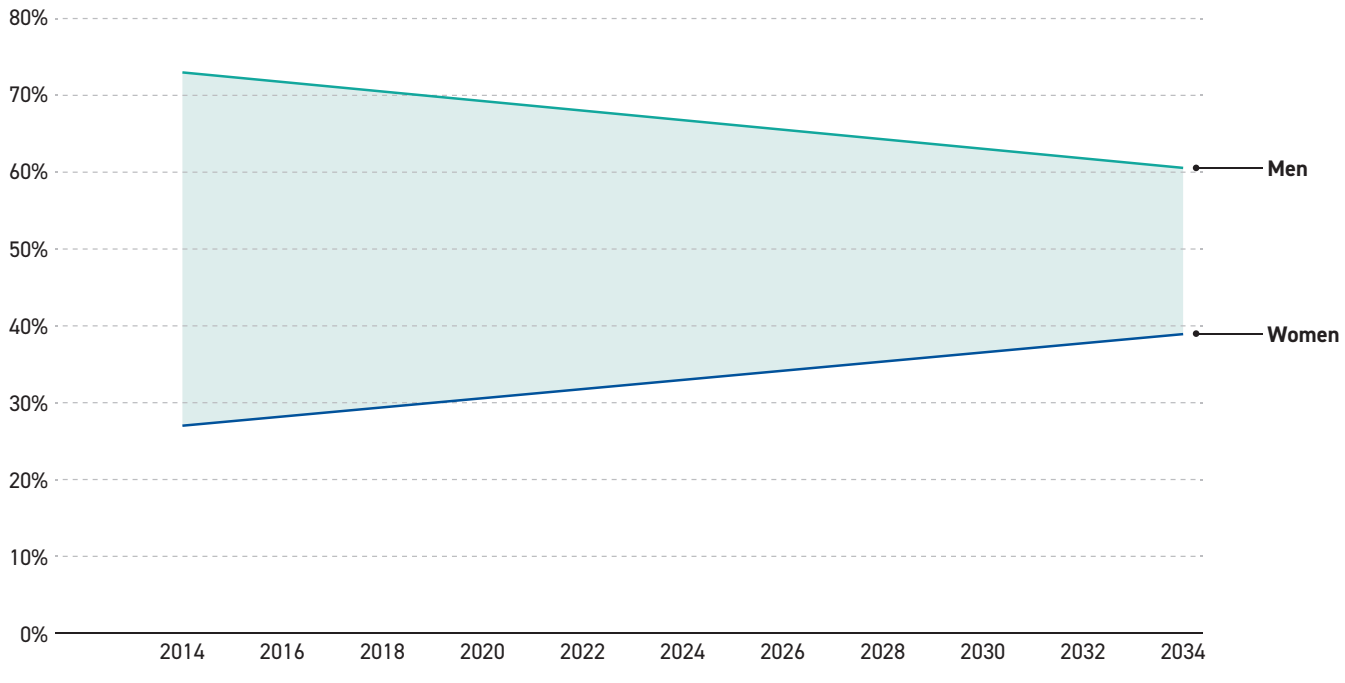

Figure 2.7. Sex equality future trend prediction for 2034

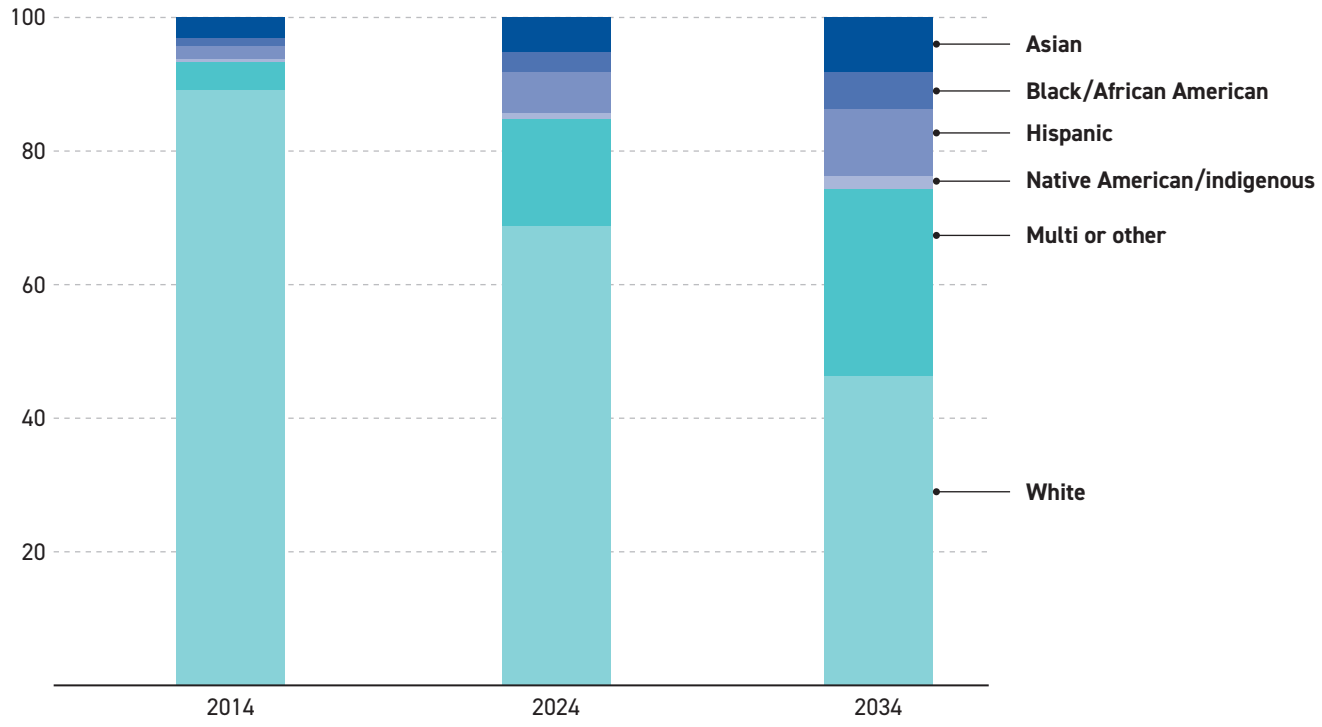

Figure 2.8. Racial representation future trend prediction for 2034

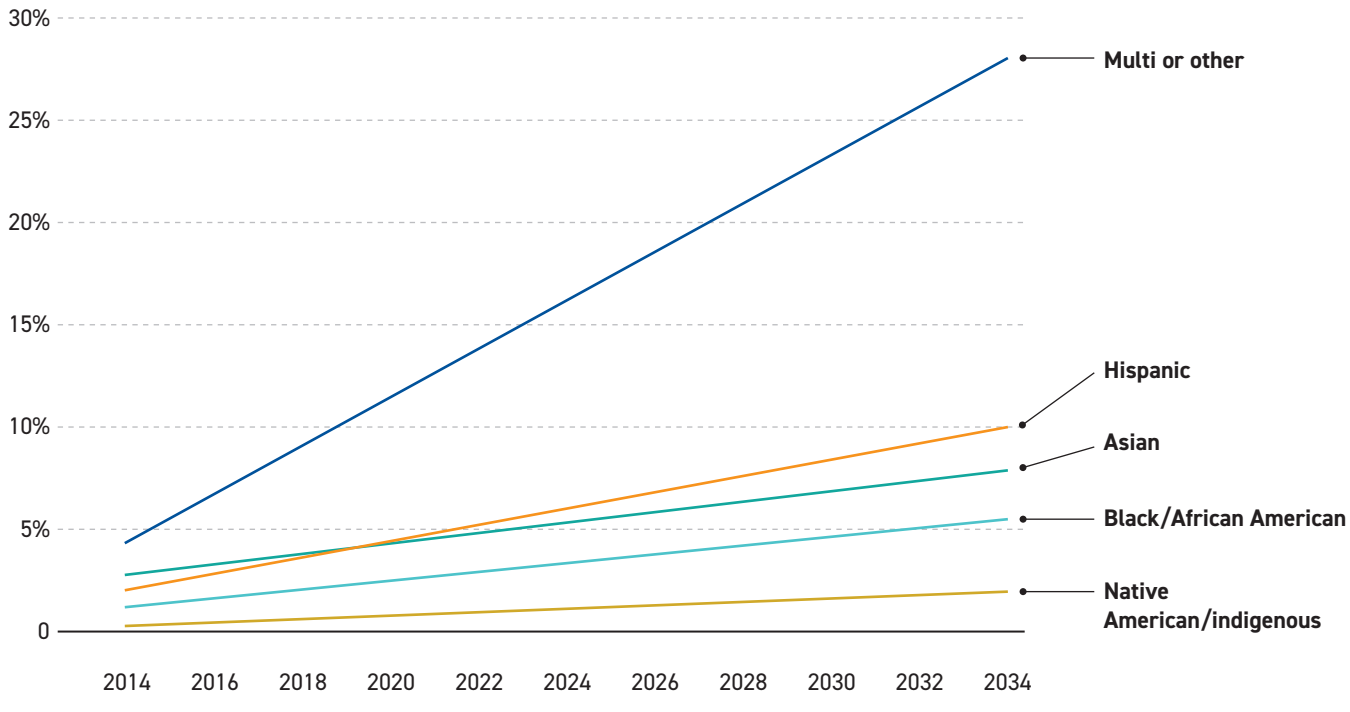

Figure 2.9. Under-represented groups future trend prediction for 2034

has been one of the many tools and solutions for improving higher education. Learners in younger generations embrace technology and the DCPs in the U.S. have incorporated more technology in recent years. It is predicted that DCPs and practitioners will learn to leverage technology to better serve their constituents. Technology for clinical practice has changed greatly since chiropractic began, with the technological development of improved chiropractic tables, adjusting instruments, and assessment tools. With the age of digital technology, the chiropractic profession continues to expand its participation in technology by engaging in use of electronic health records and clinical applications including patient care with telehealth. It is anticipated that healthcare information will become ever more readily available to patients, creating more discerning clients with pre-determined diagnoses and expected therapeutic outcomes. With the advent of artificial intelligence, there will be challenges and also improvements in diagnostic, therapeutic, and clinical outcomes.

2.18.4 Integrative Services

Chiropractic integration into the healthcare system will continue to grow. Prior barriers that were placed on chiropractic by political and social conflicts are continuing to diminish, which will allow for better integration of chiropractic services within the established healthcare system and care pathways. The integration of chiropractic care ultimately benefits patients, since integration improves access and choice, which allows patients to seek out and receive needed care in a holistic environment.

2.18.5 Reimbursement

Reimbursement for health services continues to be a challenge in the United States, not only for chiropractic but for other health professions. Those in private practice may have greater flexibility to choose their reimbursement method, which may include cash reimbursement. Other models of payment will also change as demand changes. Thus, options for reimbursement will expand. Business models promising instant service by recognized experts may promote reimbursement via cash and self-insured mechanisms. As systems change, so will reimbursement models. Chiropractors who are employees of multispecialty groups or large healthcare systems may have their salary based upon productivity measures using fee for service or capitated models. Potential changes in payment systems, such as value-based care, will likely have an impact on the broad healthcare fiscal landscape. Regardless, the chiropractic profession will continue to advocate for reimbursement equity.

2.18.6 Business Role

Although sole proprietors will continue to dominate business roles, there may be growth for those working in practices where they are salaried or are partners. Growth in employment or contract work in hospitals and interdisciplinary settings is anticipated. Other models that are emerging, such as mobile, franchise, and concierge care, will likely continue to increase. (Figure 2.10)

2.18.7 Education and Training

Education in chiropractic will continue to improve and transform. As academics search for ways to improve the student learning experience, they also will find ways to contain costs and improve the quality of education. Solutions may include joining pre-existing universities that have robust resources, as well as developing more flexible education programs that include fundamental courses in the first year that could be learned on a virtual platform. Ultimately, quality cannot be sacrificed, and all graduates must be able to demonstrate the professional core competencies of knowledge, skills, values, and behaviors that are required to practice as a chiropractic professional. The number of chiropractic residency programs will continue to grow in both the Veterans Administration and private hospitals. The residency programs are not a requirement to practice chiropractic in the U.S.

but they help to prepare those who are interested in working in integrated healthcare environments. It is also expected that chiropractic state statutes will be updated to meet this changing educational model and the needs of the public.

2.18.8 Research and Science

Research and science have been major components of chiropractic culture since its beginning and will continue to expand. Whether used directly in relationship to patient care, or to inform activities related to reimbursement or legal aspects of practice, scientific evidence helps to support the profession. Furthermore, it is helpful for chiropractors to be able to speak the language of science and provide evidence when working in collaboration with other professionals. Thus, training in the application of scientific evidence to clinical practice within chiropractic programs will continue to grow. Although a sizable amount of evidence already exists for some primary chiropractic procedures such as spinal manipulation, continued research into other areas and impacts is still needed. Chiropractic research to date has focused on specific components of chiropractic treatment, but there will be more investigations into pragmatically delivered chiropractic treatment and integration. In addition, research using emerging technologies and study designs, as well as investigations into underexplored areas are also warranted. There is still much to learn about the effects that chiropractic care has on patient health and well-being across the care continuum, including in the areas of health promotion, disease prevention, treatment, rehabilitation, nutrition, and palliative care. The inclusion of DCPs into existing universities holds promise for faculty members who will need to engage in research to avail themselves of the existing research infrastructure.

2.18.9 Whole Health

The upward trend of a whole health approach to patient care in mainstream U.S. healthcare is refreshing (Jonas & Rosenbaum, 2021; National Academy of Sciences and Medicine, 2023). This holistic approach to health and wellness considers the physical, emotional, social, and spiritual well-being of a patient (Jonas & Rosenbaum, 2021). The chiropractic approach to care is well-suited to

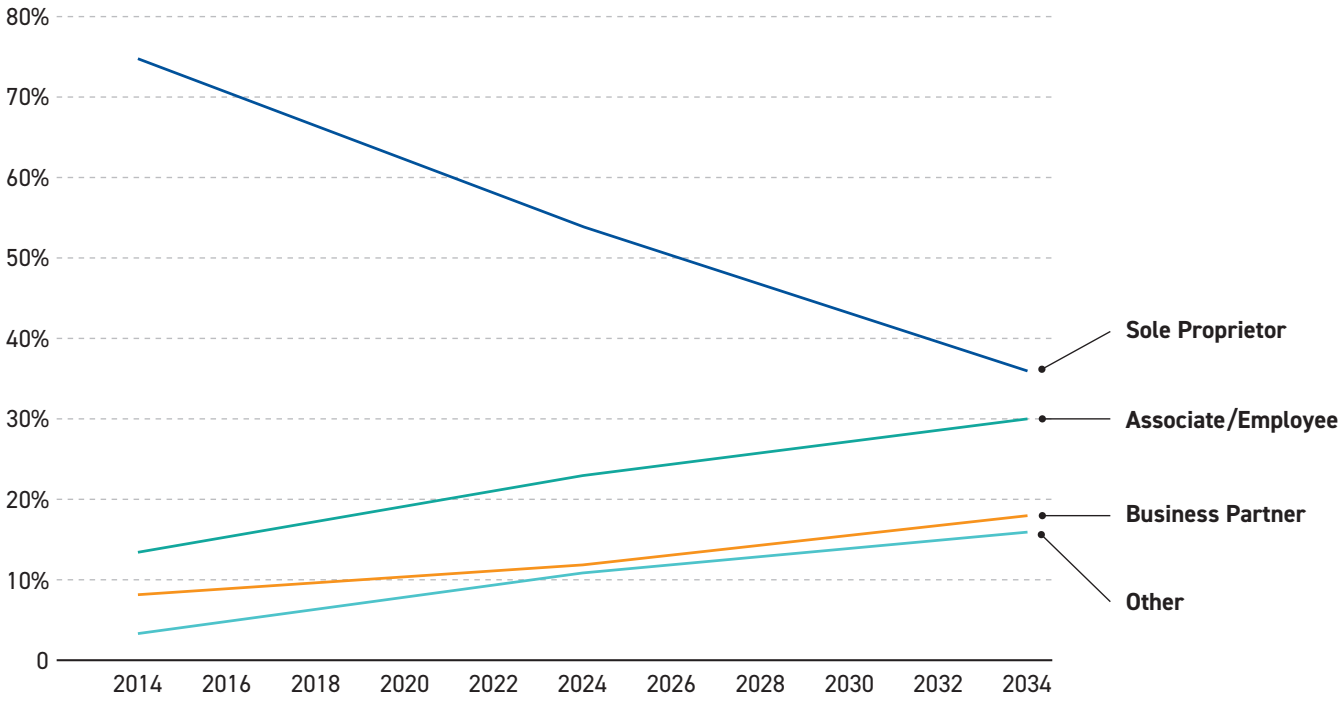

Figure 2.10. Business role future trend prediction for 2034

this model and has been a fundamental part of this paradigm since its inception 130 years ago. Thus, chiropractors do not need to engage in a dramatic paradigm shift, as they have already embraced it. Chiropractors will convey the model to others in healthcare in a manner that is logical, collegial, and supported by evidence. The current body of literature that describes chiropractic care within the Whole Health model will continue to expand (Reed et al., 2022; Zeliadt, 2025; Zeliadt, 2022; Gatterman, 1995). As mainstream healthcare continues to explore the concept of whole health, Doctors of Chiropractic will facilitate this concept and speed its adoption.

2.18.10 Policy

Chiropractic leaders and influencers will continue to take more prominent roles in contributing to policy, reimbursement, and care delivery. As chiropractic education and services become more integrated, and research continues to grow, more information will be available to help inform and shape decisions. Chiropractors will develop strategic plans that will service the public's needs by addressing all levels of the socio-ecological framework (Johnson et al., 2023). These actions will facilitate dialogues about chiropractic in policy, practice, education, and research, which in turn will foster the formation of positive relationships and collaborations.

2.18.11 Public Awareness

The public will be more educated about chiropractic training and the qualifications required for a DC to become licensed to practice. Informative and relevant messages from the profession can aid in helping the public gain greater appreciation for the variety of health benefits available through chiropractic. Additional studies of the public's opinions will be performed to gather relevant information to best serve the public's needs (Gallup, 2015). The public's improved understanding of the chiropractic profession may assist with improved access to care and the general health of the public, especially related to the most common conditions that chiropractors manage, which are described in this practice analysis.

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Chapter Three
Methodology

3.1 Overview

This chapter describes the details of the methodology for the *Practice Analysis of Chiropractic 2025*, thereby providing transparency and reproducibility. A practice analysis requires systematic procedures to collect, document, and interpret information about the responsibilities, skills, work environment, and qualifications required for a professional. The process starts with data collection through interviews, questionnaires, direct observation, employee self-reports, and other methods. Information obtained from these methods is used to define the core tasks of the profession and identify required competencies. The frequencies of task performance and risk associated with poor performance of a task are then calculated. Previous research shows "The goal of a strategic job analysis is specification of the tasks to be performed, and the knowledge, skills, and abilities (KSAs) required for effective performance." (Schneider & Konz, 1989).

It is widely acknowledged that practice analyses provide the key evidence that underpins the

content validity of scores from licensure examinations (Raymond, 2001). Validating licensing examinations involves evaluating the extent to which the test content accurately represents the requisite knowledge, skills, and judgment necessary for professional competence (Kane & Brigman, 2017). Content validity is a fundamental concept in measurement theory, addressing the extent to which a test or assessment adequately represents the full domain of the construct it is intended to measure. It evaluates whether the individual items within a test capture all relevant aspects of the construct under consideration, thereby ensuring the comprehensiveness and appropriateness of the test (Kerlinger & Lee, 2000).

Establishing content validity involves expert judgments and systematic processes to ensure that the test reflects the intended knowledge, skills, or attributes (Polit & Beck, 2006). Content validity is concerned with the alignment between the test content and the construct rather than the outcomes or relationships with other measures (Haynes et al., 1995). This alignment is crucial in high-stakes assessments, such as professional licensure exams, where the consequences of decisions based on the results demand rigorous validation (Kane, 2013; Hertz & Chinn, 2000). Therefore, for the U.S. Chiropractic Practice Analysis 2025, the information on current chiropractic practices in the U.S. is applied to the development and validation of prelicensure chiropractic examinations, specifically the Part III and Part IV exams.

For the methods used in this practice analysis, we used a formal, systematic approach to data collection and analysis (McCormick, 1976; Voskuijl, 2017). The objective was to gain a detailed understanding of the key skills, responsibilities, and knowledge that define chiropractic practice. For this process, we used a survey to collect relevant data. The design and administration of the survey were critical to the success of the analysis, as they directly influenced the quality and accuracy of the data collected. Therefore, for transparency and clarity, this section describes survey methods, including the construction of the questions, the process of administering the survey, the development of survey weights, the analysis of post-survey data, and input from stakeholders that aided in constructing the report. Each of these components plays an essential role in ensuring that the practice analysis accurately reflects the current state of the profession, provides a reliable foundation for the development of licensure examinations, and makes the data accessible for all stakeholders in the profession.

3.2 Survey Design

For the *Practice Analysis of Chiropractic 2025*, we performed a cross-sectional study of practicing chiropractors in the U.S. in 2024.

3.3 Survey Development

The survey for the *Practice Analysis of Chiropractic 2025* was based upon the job inventory approach known as a Functional Job Analysis (Fine & Wiley, 1971; Singh, 2008). We incorporated the essential components into various forms and stages of the survey.

As suggested by Knapp and Knapp (1995),

> *"The first step in conducting a Functional Job analysis is defining the purpose and goals of the occupations. A trained job analyst then identifies what must be done to accomplish the purpose and goals, by determining what the worker does (i.e., processes or procedures used to perform a task) and how it is done (i.e., physical, mental, interpersonal skills required during the process and procedure" (p. 97).*

The entire survey development process was overseen by a Practice Analysis Committee composed of NBCE employees, consultants, and subject matter experts in chiropractic. To ensure the robustness of the questions, the NBCE sought feedback from experienced researchers and practitioners within the chiropractic profession, who reviewed

and provided input throughout the development of the survey, and on the final instrument. Items from prior practice analysis surveys administered by the NBCE were reviewed for relevance. Additional inputs were considered from the Stakeholder Report described below. Pertinent items were included in the 2024 survey. Furthermore, new items were developed by a team consisting of chiropractors and survey specialists.

The development of the questions involved a rigorous pre-testing process to ensure its validity and reliability. Such pilot testing is a critical step in survey design, aligning with best practices to enhance usability and relevance in professional research contexts (Dillman et al., 2014). A sample of practicing chiropractors was selected to evaluate the survey for clarity and practicality, confirming that it could be completed within a reasonable timeframe. This phase focuses on identifying ambiguities, redundancies, or overly complex items that might hinder respondents' understanding or ability to provide accurate responses.

To further refine the instrument, cognitive testing was conducted using a panel of chiropractic experts. This approach allowed for an in-depth evaluation of the survey's content validity, ensuring that questions accurately represented the intended constructs and reflected the expertise of the chiropractic field. Simultaneously, the fluency and clarity of the questions were assessed by a group of volunteers who completed the survey and offered constructive feedback. These reviews helped pinpoint areas requiring clarification or rephrasing, fostering an accessible and straightforward respondent experience (Nardi, 2018).

3.4 Stakeholder Input

In 2023, a stakeholder input study was initiated to assess the importance of the *Practice Analysis of Chiropractic 2025* and to aid survey development. The purpose of this stakeholder report was to provide NBCE with perspectives from a wide variety of the chiropractic profession's stakeholders and provide input on the survey and how the findings are reported.

Twenty-seven stakeholder representatives were invited based on the following criteria:

- Professional chiropractic-related entities that represented a large number of chiropractors in the U.S.
- Representatives had permission to represent and comment on behalf of their entity.

The stakeholder study was completed in two parts. The foundational information was collected from September to November 2023. The data were reviewed for themes and recommendations that would inform future NBCE Practice Analysis surveys and reports. A follow-up questionnaire, created based on the themes and participant recommendations provided in the first part, was implemented from April to May 2024.

Each of the 22 representatives that responded provided a permission letter from their entity stating that the information could be included in the report. The following participants were stakeholders that span the majority of the chiropractic profession's interests, thus representing the majority of the chiropractic profession in the U.S. We thank them for their valuable feedback and assistance in this part of the project.

Political or professional associations

- International Chiropractors Association
- American Black Chiropractic Association
- American Chiropractic Association
- ChiroCongress
- World Federation of Chiropractic
- Association of Chiropractic Colleges

Industry, services (malpractice insurance, financing), suppliers (materials, supplies)

- ChirohealthUSA
- NCMIC
- ChiroArmor

- Breakthrough Coaching
- Kats Chiropractic Consultants

Education or accreditation
- Academy of Integrative Health and Medicine
- Council on Chiropractic Education

Healthcare providers (chiropractors)
- Women Chiropractors
- World Spine Care

Research or research funding
- Clinical Compass (CCGPP)
- NCMIC Foundation

Media and publications
- Foundation for Chiropractic Progress
- MPA Media/Dynamic Chiropractic

Policy makers, legislature, or legal
- National Association of Chiropractic Attorneys

Licensure, regulation
- Federation of Chiropractic Licensing Boards

Healthcare system, healthcare companies
- Arete Healthcare

The stakeholders' feedback from the study helped to inform the survey and analysis, ensuring it remained relevant and beneficial for all in the chiropractic profession. The feedback highlighted recommendations aimed at enhancing accessibility and understanding of the findings. These included providing more detailed insights, improving communication tailored to different stakeholders, and preparing concise summary reports to accompany the main publication. Recommendations stressed the need for the analysis to address the relevance and utility for the chiropractic field. Suggestions included crafting unique communications to meet the diverse needs of stakeholders while encouraging better engagement with the findings.

Conducting the stakeholder input study signifies an ongoing effort to align the Practice Analysis outcomes with professional standards and stakeholder expectations, emphasizing its centrality to the profession's growth and development.

3.5 Survey Structure

The *Practice Analysis of Chiropractic 2025* survey consisted of ten sections, of which eight sections assessed chiropractors' office settings, frequency of performance of professional tasks, risk associated with each task when performed improperly, conditions treated or comanaged by chiropractors, and chiropractors' demographic characteristics. The following eight sections constituted the core of the survey: Office Settings; Patient Assessment Tasks; Case Management Tasks; Communication Tasks; Treatment Tasks; Conditions Identified, Treated or Co-managed by Chiropractors; Scientific and Ethical Practices; and Demographic Characteristics.

Two non-core sections were the Introduction and Screener, which helped to identify relevant respondents. The Screener section consisted of 2 questions:

1. Do you currently practice chiropractic?
   a. If "yes", continue with the survey
   b. If "no", question 2
2. Is your work affiliated with the chiropractic profession?
   a. If "yes", continue with the survey
   b. If "no", end of survey page

The chiropractic professional respondents were categorized into four subpopulations: chiropractors practicing outside the U.S. or its territories, chiropractors practicing inside U.S. and territories full-time, chiropractors practicing inside U.S. and territories part-time (defined as fewer than 20 hours per week), and those not currently practicing chiropractic. For the 2024 survey, the focus was on full-time practicing

chiropractors in the U.S. and its territories. Responses from chiropractors practicing outside the U.S. or its territories and retired chiropractors were not included in the results. Those practicing less than 20 hours per week were included in the demographics results of this report (Chapter 4), but not in the other analyses reported in Chapters 5-8.

3.6 Measures and Scales

The development of the survey items was guided by several key objectives, which aimed to support content validity (Crano, Brewer, & Lac, 2014) in the core sections of the survey. The primary objective was to create items that would assess the frequency with which various professional functions are performed on an annual basis. Additional items were designed to evaluate the perceived risk to the patient resulting from the nonperformance or substandard performance of each function.

The Patient Assessment domain addressed both assessment and associated risks (see Table 3.1). Similarly, the Case Management domain focused on evaluating management practices along with corresponding risk considerations (see Table 3.2). The Communication Tasks domain highlighted communication practices alongside their risk implications (see Table 3.3). In the Treatment Task domain, the focus extended to treatment actions and their associated risks (see Table 3.4). The Conditions Identified, Treated or Co-managed domain explored the scope of conditions identified in their practices, which were managed by chiropractors, and the types of management provided (see Table 3.5). The Scientific and Ethical Practices domain emphasized key aspects of professional activities and ethical standards (see Table 3.6).

Demographic information of respondents and practice settings are presented in Table 3.7.

3.7 Sampling Design and Weights

3.7.1 Overview

We chose survey design because it is a structured approach for collecting data from a sample of individuals, aiming to describe characteristics of the larger population that these individuals represent (Groves et al., 2009). Since population parameters cannot be measured directly, they are estimated through sample data (Freedman, Pisani, & Purves, 2007). For valid inferences about the population, the sample must be representative. Each statistic derived from the sample serves as an estimate of a population parameter, making it essential for researchers to minimize the gap between the estimate and the actual parameter (Crano, Brewer, & Lac, 2014; Kerlinger & Lee, 2000). Key factors that contribute to discrepancies between sample estimates and true population parameters include coverage error (when some population units have no chance of being included in the sample), sampling error (due to surveying only a subset rather than the entire population), measurement error (arising from inaccurate responses caused by poor question design, data collection mistakes, administration mode, or social desirability bias), and nonresponse error (when individuals in the sample do not respond to the survey; Dillman, Tortora, & Bowker, 1999).

3.7.2 Sampling Frame

In designing our sampling frame, our goal was to estimate population parameters relevant to the chiropractic profession, defined as all licensed chiropractors in the U.S. To ensure accuracy of our estimates, we needed to address two main considerations: representation of all states within the sample and maintaining the error of estimation within acceptable limits. Specifically, the error of estimation is defined as:

$$Error\ of\ Estimation = \left|\theta - \hat{\theta}\right| < B$$

Table 3.1 Variables Representing Patient Assessment

ITEM
Indicate the frequency you perform the following tasks:
Problem-focused case history (i.e., limited to chief complaint)?
Detailed/comprehensive case history (i.e., including: past health history, family health history, biopsychosocial history, and review of systems)?
Comprehensive physical examination (i.e., including: vital signs, EENT, cardiopulmonary, and abdominal exams)?
A focused EENT examination?
A focused cardiopulmonary examination?
A focused abdominal examination?
A focused orthopedic/neurologic examination (i.e., limited to the area of complaint)?
A comprehensive orthopedic/neurologic examination?
A spinal examination/analysis?
A postural and gait analysis?
A cervical, thoracic, lumbopelvic, and/or extremity palpatory evaluation?
Patient-reported outcome measures (e.g., pain scale ratings and/or disability questionnaires)?
Draw blood, collect urine, and/or perform other laboratory tests?
Order blood, urine, or other laboratory tests from an outside facility?
Review the results of previously performed laboratory tests?
Read radiographs that you did not take or order?
Order a nerve conduction velocity (NCV) and/or needle electromyography (EMG) study?
Review the results of a previously performed NCV or EMG study?
Order an MRI, CT, or bone scan imaging study?
Review the results of a previously performed MRI, CT, or bone scan imaging study?
Perform other specialized studies (e.g., ECG, diagnostic or Doppler ultrasound, bone density, etc.) in your office?
Order other specialized studies (e.g., ECG, diagnostic or Doppler ultrasound, bone density, etc.) from an outside facility?
Obtain and review the results of other previous specialized studies?

Note 1. Every frequency item (represented in the table) was accompanied by a risk item: "Indicate the risk to the patient's health or safety when a chiropractor poorly performs or misinterprets the following tasks".

Note 2. Frequency was measured using the following categories: 1 = Never, 2 = Yearly, 3 = Monthly, 4 = Weekly, and 5 = Daily.

Note 3. Risk was measured using the following categories: 1 = No risk, 2 = Minimal risk, 3 = Moderate risk, and 4 = Significant risk.

Table 3.2 Variables Representing Case Management

ITEM
Indicate the frequency you perform the following tasks:
Review radiographic images to identify or rule out fracture, dislocation, and other pathology
Review MRI, CT, or bone scan images to identify or rule out traumatic injuries and/or other pathology
Review laboratory studies and interpret the results
Review specialized studies such as NCV, EMG, ECG, etc. and interpret the results
Review radiographic images to determine the possible presence of a spinal listing and/or subluxation
Assess risk factors and contraindications to chiropractic care
Develop a differential diagnosis or clinical impression
Search online databases to assist in patient management
Develop a case management plan
Form a prognosis
Refer a patient to a specialist for consultation or co-management
Collaborate with other professionals and/or participate as a member of an interdisciplinary team
Perform patient re-examinations, either periodically or when the patient's condition changed
Obtain repeat/follow-up radiographic examinations to monitor a patient's progress or response to care
Release a patient from active care

Note 1. Every frequency item (represented in the table) was accompanied by a risk item: "Indicate the risk to the patient's health or safety when a chiropractor poorly performs or misinterprets the following tasks".

Note 2. Frequency was measured using the following categories: 1 = Never, 2 = Yearly, 3 = Monthly, 4 = Weekly, and 5 = Daily.

Note 3. Risk was measured using the following categories: 1 = No risk, 2 = Minimal risk, 3 = Moderate risk, and 4 = Significant risk.

Table 3.3 Variables Representing Communication

ITEM
Indicate the frequency you perform the following tasks:
Create complete documentation of a patient's case history and examination findings, the diagnosis and prognosis, and the case management plan
Review with a patient relevant case history and examination findings, diagnosis, prognosis, and case management options in a report of findings
Obtain written, informed consent for treatment
Completely and legibly document each patient visit in the SOAP note (or similar) format
Completely and legibly document, on each visit, the patient's presentation in the PART format (pain/tenderness, asymmetry, range of motion, and tissue tone) as required for Medicare reimbursement
Write a physical restriction/activity modification order
Make specific recommendations to a patient regarding changing risky or unhealthy behaviors
Make specific recommendations to a patient concerning disease prevention/screening
Make specific recommendations to a patient regarding ergonomic or postural advice
Make specific recommendations to a patient regarding nutritional and dietary behaviors
Make specific recommendations to a patient regarding physical fitness and exercise
Make specific recommendations to a patient regarding relaxation or stress reduction
Make specific recommendations to a patient regarding activities of daily living
Make specific recommendations to a patient regarding smoking cessation
Write a narrative report (not daily notes)

Note 1. Every frequency item (represented in the table) was accompanied by a risk item: "Indicate the risk to the patient's health or safety when a chiropractor poorly performs or misinterprets the following tasks".

Note 2. Frequency was measured using the following categories: 1 = Never, 2 = Yearly, 3 = Monthly, 4 = Weekly, and 5 = Daily.

Note 3. Risk was measured using the following categories: 1 = No risk, 2 = Minimal risk, 3 = Moderate risk, and 4 = Significant risk.

Table 3.4 Variables Representing Treatment

ITEM
Indicate the frequency you perform the following tasks:
A manual chiropractic adjustment on the cervical spine
A manual chiropractic adjustment on the thoracic spine
A manual chiropractic adjustment on the lumbar spine/pelvis
An instrument-assisted chiropractic adjustment (e.g., Activator, drop-section, flexion-distraction, etc.) of the occiput, spine, and/or pelvis
A manual chiropractic adjustment of an extra-spinal articulation
An instrument-assisted chiropractic adjustment (e.g., Activator, etc.) chiropractic adjustment of an extra-spinal articulation?
An objective assessment of the involved joints' function immediately following your chiropractic adjustment?
Use an attended physiotherapeutic modality (e.g., cold laser, ultrasound, etc.)
Use an un-attended physiotherapeutic modality (e.g., motorized traction, vibration, diathermy, heat/cold packs, etc.)
Use in-office active rehab exercises
Use acupuncture (with needles)
Use dry needling
Use orthotics, bracing, and/or taping as an adjunctive treatment
Use myofascial/soft tissue release techniques
Supply nutritional supplements, herbs, enzymes, or homeopathic remedies as an adjunctive treatment
Treat children, infants, or adolescents
Treat patients older than 65
Treat athletes, or sport teams
Treat veterans or active-duty military
Treat underserved or special populations
Treat animals

Note 1. Every frequency item (represented in the table) was accompanied by a risk item: "Indicate the risk to the patient's health or safety when a chiropractor poorly performs or misinterprets the following tasks".

Note 2. Frequency was measured using the following categories: 1 = Never, 2 = Yearly, 3 = Monthly, 4 = Weekly, and 5 = Daily.

Note 3. Risk was measured using the following categories: 1 = No risk, 2 = Minimal risk, 3 = Moderate risk, and 4 = Significant risk.

Note 4. For the purposes of this study, the term "adjustment" is interchangeable with the term manipulation.

Table 3.5 Variables representing Conditions Identified that are Treated, Co-managed, or Referred 50% or more of the time.

CONDITION
Abdominal aortic aneurysm
Adrenal disorder
Allergies, food or environmental
ALS, multiple sclerosis, or parkinsonism
Anemia
Angina or myocardial infarction
Appendicitis
Asthma, emphysema, or COPD
Atelectasis or pneumothorax
Avascular necrosis
Benign prostatic hypertrophy
Bone tumor/metastasis
Bursitis or synovitis
Cancer (prostate, breast, lung, skin, or other)
Carpal or tarsal tunnel syndrome
Childhood respiratory/ear infection
Cholecystitis or pancreatitis
Colic (infants)
Colitis or diverticulitis
Concussion/head injury
Congenital/developmental anomaly
Cranial nerve disorder
Diabetes/metabolic syndrome
Dislocation of any joint
Eating disorder
Extremity subluxation/joint dysfunction
Eye, ear, nose, or throat disorder
Fibrocystic breast or polycystic ovary
Fibromyalgia
Food/environmental allergies

CONDITION
Fracture (compression or other)
Gastrointestinal diseases or disorders
Headaches
Heart murmur or rhythm irregularity
Hemorrhoid
Herpes simplex or herpes zoster
Hiatal hernia/esophageal reflux
Hyper/hypolordosis of cervical or lumbar spine
Hyperkyphosis
Immune system dysfunction
Infection of joint/disc/bone
Infertility female/male
Inguinal hernia
Intervertebral disc disease/syndrome
Kidney or bladder tumor
Kidney or urinary tract infection
Kidney stones
Low back pain (less than 6 weeks in duration)
Low back pain (more than 6 weeks in duration)
Lung or respiratory tumor
Menopause
Menstrual disorder
Mental health/psychological disorders
Muscle strain
Muscle weakness or atrophy
Myofascial pain
Neck pain (more than 6 weeks in duration)
Neck pain (less than 6 weeks in duration)
Nutritional deficiency or disorder

Table 3.5 continued

CONDITION	CONDITION
Obesity or overweight	Sleep disorder
Occupational or environmental lung disorder	Spinal stenosis/neurogenic claudication
Osteoarthritis or degenerative joint disease	Spinal subluxation/joint dysfunction
Osteoporosis or osteomalacia	Sprain of any joint
Peripheral artery or vein disorder	Stress or anxiety
Peripheral neuritis, neuralgia, or neuropathy	Stroke or cerebrovascular condition
Postural syndrome	Tendinopathy
Pregnancy-related condition	Thoracic outlet syndrome
Radiculitis or radiculopathy	Thoracic pain, non-specific mechanical
Respiratory diseases or disorders	Thyroid disorder
Rheumatoid/inflammatory arthritis or gout	TMJ syndrome
Sacral or coccyx pain	Torticollis
Sacroiliac or pelvic pain	Ulcer of stomach, small intestine, or colon
Scoliosis	Urinary, stress or urge incontinence
Sexually transmitted disease	Vertigo/loss of equilibrium
Sinus condition	Whiplash, whiplash associated disorder
Skin cancer	
Skin disorders, acne, dermatitis, or psoriasis	

Note 1. Every condition encounter item (represented in the table) was accompanied by a condition management item: "Indicate how you manage each condition 50% or more of the time".

Note 2. The condition encounter was measured using the following categories: 1 = Yes, 2 = No.

Note 3. The condition management was measured using the following categories: 1 = Treated, 2 = Co-managed, and 3 = Not treated/Referred out.

Note 4. The term "subluxation" is used here within the context of the chiropractic lexicon and paradigm, such as, a joint dysfunction that can be addressed through chiropractic adjustment/manipulation. The term "subluxation" used here does not imply the medical definition, which means partial dislocation.

Table 3.6 Variables Representing Use of Evidence, Ethical Practices, and Technology

ITEM
Indicate how often you perform/engage the following tasks:
Make decisions or use chiropractic practices that are supported by best available scientific evidence
Use clinical expertise and judgement when making decisions about patient care
Consider your patients' values and include patients in decisions about their healthcare
Use information from best practices documents or professional guidelines
Use scientific resources such as journals or guidelines to support communications with your patients
Use scientific resources such as journals or guidelines to address reimbursement or billing issues
Use scientific resources such as journals or practice guidelines to address compliance, regulations, or legal issues
Use telehealth (e.g., telephone, video, secure messaging, remote patient data monitoring) for patient care
Use digital technology for electronic billing, electronic payment services, or digital communications
Use electronic health records for patient care
Conduct research, participate in research conferences, or publish in a peer-reviewed journal
Make practice decisions to ensure that your patients' health information is collected, stored, and/or transmitted confidentiality
You and your staff participate in training about practice safety and risk reduction, including patient privacy
Consider doing what is in the best interest of health and wellbeing for patients especially within the context of the patient's individual beliefs
Consider or make judgements to avoid harm to your patients, including biological, psychological, and social aspects of care
Give your patients the choice of healthcare interventions that they receive and inform them about options and effects
Include giving your patients fair treatment regardless of their individual traits, including but not limited to race/ethnicity, religion, ability/disability, or sex/gender
Communicate with non-chiropractic healthcare providers (MD, DO, PT, etc., external to your practice) about the care of your patients
Communicate with chiropractors (external to your practice) about the care of your patients
Engage in collaborative diagnosis and/or treatment with non-chiropractic healthcare providers (MD, DO, PT, etc., external to your practice)
Engage in collaborative diagnosis and/or treatment with other chiropractors (external to your practice)
Receive referrals from non-chiropractic healthcare providers (MD, DO, PT, etc.) for your care or professional opinion
Receive referrals from other chiropractors (external to your practice) for your care or professional opinion

Note 1. Every frequency item (represented in the table) was measured using the following categories: 1 = Never, 2 = Yearly, 3 = Monthly, 4 = Weekly, and 5 = Daily.

Table 3.7 Variables Representing Chiropractor Demographics and Practice Settings

ITEM	SCALE
Indicate the hours per week you personally provide patient care (including documentation)	1 = Less than 15, 2 = 15-19, 3 = 20-29, 4 = 30-39, 5 = 40-49, 6 = 50 - 59, 7 = 60 or more
How many patient visits do you personally provide per week?	1 = Less than 20, 2 = 20 - 50, 3 = 51-100, 4 = 101-150, 5 = 151 - 200, 6 = 201-250, 7 = 251 or more
Indicate your age	1 = Under 30, 2 = 30-39, 3 = 40-49, 4 = 50-59, 5 = 60-69, 6 = 70 or over
What is your sex at birth?	1 = Male, 2 = Female, 3 = Other, 4 = Prefer not to say
Indicate your ethnicity	1 = Asian Indian or Alaska Native, 2 = Asian, 3 = Black or African-American, 4 = Hispanic, Latino/a or Latinx, 5 = Middle Eastern or North African, 6= Native Hawaiian or Pacific Islander, 7 = White, 8 = Multiracial and/or Multiethnic, 9 = Prefer not to respond
Indicate years since you received your DC degree	1 = Fewer than 5 years, 2 = 5-10, 3 = 11-15, 4 = 16-20, 5 = 21-25, 6 = 26-30, 7 = 31-35, 8 = 36-40, 9 = More than 40 years
Highest level of non-chiropractic education attained	1 = Some college, 2 = Associate's degree, 3 = Bachelor's degree, 4 = Master's degree, 5 = Doctoral degree, 6 =healthcare degree (specify)
Indicate the institution that conferred your doctor of chiropractic degree	List of institutions
In what state/jurisdiction is your primary practice currently located?	List of U.S. states and territories
What is your annual adjusted gross income from chiropractic practice?	Categories ranging from less than $50,000 to over $500,000
What is your primary practice setting? Select all that apply.	List of settings
Which description best characterizes your role in the primary office where you work?	Sole proprietor, Business partner, Associate or employee, Contractor, Other (specify)
What is the population density of the community in which your primary practice is located?	Urban (more than 100,000 people), highly dense population within a large city, Suburban, bordering large city, Small city or town, Rural (fewer than 10,000 people), sparsely populated outside city, Other (specify)

Table 3.7 continued

ITEM	SCALE
During the past year, what percent of your patient cases were devoted to the following reimbursement categories?	Personal injury, Worker's compensation, Private health insurance, Private pay or cash, Medicare, Medicaid, Veterans administration, Pro bono or write offs, Concierge or membership plan, Other (specify)
Are you able to refer to hospitals for diagnostic services?	1= Yes, 2 = No
What is the focus of your primary practice?	List of foci
Do you provide diagnostic imaging in your office?	1 = Yes, 2 = No
Indicate a post-graduate diplomate status (or equivalent) you may have through a specialty board, council, academy, college, or association:	None/does not apply, Have worked toward diplomate status (or equivalent) but not completed, Awarded diplomate status (or equivalent) by a specialty board, council, academy, college, or association, Other (specify)
Indicate any diplomate programs completed. Select all that apply	List of diplomate programs
Approximate amount of time (in hours) you spend on the following practice functions during a typical week	Patient care and treatment, Documentation of care, Business management (personnel, marketing, etc.)
Indicate the percent of patients you treated during past year that is	1= Male, 2 = Female
Indicate the percent of patients you treated during past year that is	1 = 5 years or younger, 2 = 6-17 years of age, 3 = 18-30, 4 = 31-64, 5 = 65 or older

where θ[1] is the value of the parameter, $\hat{\theta}$ is the estimate and *B* is some predetermined value. We must set a probability that specifies the fraction of times in repeated sampling we require the error of estimation to be less than B. Stated formulaically:

$$P[Error\ of\ Estimation < B] = 1 - \alpha$$

where α is the probability of Type I error. Usually, in survey research, α is set at 0.05, which leaves researchers with 95% confidence for normally distributed responses (Scheaffer, Mendenhall, & Ott, 2006). For this survey, we set $\alpha = 0.05$.

3.7.3 Weights

We first computed the initial weights for each participant by considering their likelihood of selection at the state level. For that we used statistics provided by the Federation of Chiropractic Licensing Boards (Federation of Chiropractic Licensing Boards, 2024). The Federation of Chiropractic Licensing Boards provides data on the

[1] In terms of the survey, θ is the true value (population based, if we could estimate it) of a survey item response, while $\hat{\theta}$ is the value estimated from the sample.

number of chiropractic licenses issued in each U.S. state and territory. Although some individuals may hold licenses in multiple states, this represents the most reliable statistical resource available for estimating the overall chiropractic population across the U.S. and its territories. Subsequently, we adjusted these weights to account for non-response among survey participants. By comparing the expected number of respondents within each state to the actual number of respondents, we made adjustments to ensure the results were representative and accounted for non-response biases.

Finally, we derived adjusted weights for each individual by incorporating both the initial weights and the adjustments made to address non-response. These adjusted weights are the final weights in the data.

A detailed description of that process is as follows:

Weights to control for unequal probabilities of selection were developed at the state level. The development of weights began with the construction of the *initial weights* for each sampled participant to correct for unequal probability of selection. The reciprocals of the selection probability into the sample were calculated. The initial weights at the level were calculated in the following way:

$$w_{is} = \frac{1}{p_{is}};\ p_{is} = \frac{n_{iq}}{N_s}$$

where w_{is} is the initial weight for respondent *i* in a state *S, i = 1, 2, ..., N_s, and s = state*. Further, p_{is} is the probability of a respondent in a particular state to be selected into the sample, n_{iq} is a pre-determined fully proportional sample (quota), and N_s is the population of licensed chiropractors in a particular state. The quota was established to be 10% of currently licensed chiropractors in a particular state.

Adjustments of sample weights for non-response were made in the following way:

$$wnr_{is} = \frac{n_{isq}/N_s}{n_{isc}/N_s}$$

where wnr_{is} is the non-response adjustment factor, n_{isq} is the states' quota, and n_{isc} is the sample of respondents collected in a state.

Finally, adjusted weights were calculated in the following way:

$$w_{isa} = w_{is} * wnr_{is}$$

where w_{isa} is the adjusted weight at a state level.

3.8 Chiropractic Organizations that Assisted in Survey Distribution

Various chiropractic organizations were contacted to inform them about the survey and to request that they distribute survey links to their members. The goal was to gather as many respondents as possible.

Table 3.8 provides the list of chiropractic entities that helped distribute the *Practice Analysis of Chiropractic 2025* survey.

3.9 Ethics

On February 15, 2024, the Institutional Review Board (IRB) of the National Board of Chiropractic Examiners (NBCE) reviewed the *Practice Analysis of Chiropractic 2025* survey. The committee granted an exemption from full review due to the privacy and anonymizing protocols incorporated into the survey.

3.10 Sample Size Consideration

A sample size of 1,000 is typically considered sufficient for most survey research (Scheaffer, Mendenhall, & Ott, 2006). This is because the average response to a survey question can serve as an

Table 3.8 Chiropractic Organizations that Distributed the Link to the Survey

Organization
• American Black Chiropractic Association (ABCA)
• American Chiropractic Association (ACA)
• Association of Chiropractic Colleges (ACC)
• American Chiropractic Board of Sports Physicians (ACBSP)
• American Chiropractic Board of Radiology (ACBR)
• American Chiropractor Magazine
• American Clinical Board of Nutrition (ACBN)
• American Public Health Association, Chiropractic Healthcare section (APHA-CHC)
• Chiropractic Board Administrators Committee (CBAC)
• Chiropractic Board of Clinical Nutrition (CBCN)
• Cleveland University
• ChiroCongress - Congress of Chiropractic State Associations (COCSA)
• Dynamic Chiropractic
• Federation of Chiropractic Licensing Boards (FCLB)
• Foundation for Chiropractic Progress (F4CP)
• Idaho Division of Occupational and Professional Licenses
• Illinois Chiropractic Society
• International Chiropractors Association (ICA)
• Journal of Chiropractic Education
• Life University, College of Chiropractic
• Life Chiropractic College West
• Logan University
• National University of Health Sciences
• NCMIC Insurance
• New York State Chiropractic Association
• Northeast College of Health Sciences
• Northwestern Health Sciences University
• Texas Chiropractic Association (TCA)
• Texas Chiropractic College
• Universidad Central del Caribe
• University of Western States
• Women Chiropractors

estimate of the population parameter. However, sampling introduces an element of "chance error" where there is an expected level of deviation from the true population parameter (Freedman, Pisani, & Purves, 2007). To minimize chance error, we set a 95% confidence level.

Based on the 95% confidence level, a sample size of 1,000 was adequate. Even though further increases in sample size yield diminishing returns in terms of error reduction, we set the target sample size at 3,000 participants to ensure the sample would adequately represent the population for the 2024 survey.

Table 3.9 Survey Respondents by State or U.S. Territory

State/Territory	*n*	95% Margin of Error
Alabama	102	9.7%
Alaska	12	28.3%
Arizona	90	10.3%
Arkansas	33	17.1%
California	320	5.3%
Colorado	93	10.2%
Connecticut	51	13.7%
Delaware	3	56.6%
District of Columbia	16	24.5%
Florida	150	7.8%
Georgia	141	8.0%
Hawaii	9	32.7%
Idaho	12	28.3%
Illinois	139	8.3%
Indiana	48	14.2%
Iowa	75	11.3%
Kansas	27	18.9%
Kentucky	36	16.3%
Louisiana	8	34.6%
Maine	15	25.3%
Maryland	51	13.7%
Massachusetts	45	14.6%
Michigan	54	13.3%
Minnesota	351	5.2%
Mississippi	3	56.6%
Missouri	63	12.4%
Montana	27	18.9%
Nebraska	32	17.3%
Nevada	203	6.9%
New Hampshire	24	20.0%
New Jersey	84	10.7%
New Mexico	15	25.3%
New York	218	6.6%
North Carolina	330	5.4%
North Dakota	24	20.0%
Ohio	129	8.6%
Oklahoma	21	21.4%
Oregon	110	9.2%
Pennsylvania	131	8.5%
Puerto Rico	18	23.1%
Rhode Island	9	32.7%
South Carolina	54	13.0%
South Dakota	27	18.9%
Tennessee	38	15.8%
Texas	84	10.7%
Utah	27	18.9%
Vermont	21	21.4%
Virginia	54	13.3%
Washington	111	9.1%
West Virginia	9	32.7%
Wisconsin	87	10.5%
Wyoming	33	17.1%
U.S. Virgin Islands	9	32.7%

Table 3.10 Ranges and Interpretation for Importance Index

Range	Importance Level
1–4	Minimal Importance
5–8	Moderate Importance
9–12	High Importance
13–16	Very High Importance
17–20	Critical Importance

3.11 Survey Administration

As with the previous Practice Analysis survey conducted in 2019, the 2024 survey was administered electronically. Research has shown that electronic surveys offer advantages such as faster response times and reduced costs (Jansen, Corley, & Jansen, 2007). The survey remained open from June 1 to August 30, 2024.

The Qualtrics Platform (Qualtrics, Provo) was used to administer the survey. Participation was voluntary. Respondents had the option to skip

Table 3.11 Definitions of Statistical Measures

Statistic	Symbol	Formula
Mean/Average*	$\mu, \hat{\mu}, \bar{x}, M$	$\hat{\mu} = \frac{1}{n}\sum_{i=1}^{n} X_i$
Standard Deviation	$\sigma, \hat{\sigma}, s, SD$	$\hat{\sigma} = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(X_i - \hat{\mu})^2}$
Variance	$\sigma^2, \hat{\sigma}^2, s^2$	$\hat{\sigma}^2 = \frac{1}{n-1}\sum_{i=1}^{n}(X_i - \hat{\mu})^2$
Correlation**	$\rho, \hat{\rho}, r$	$\hat{\rho} = \frac{\frac{1}{n-1}\sum_{i=1}^{n}(X_i - \hat{\mu}_X)(Y_i - \hat{\mu}_X)}{\sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(X_i - \widehat{\mu_X})^2}\sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(Y_i - \widehat{\mu_Y})^2}}$
Standard Error	SE	$SE = \frac{\hat{\sigma}}{\sqrt{n}}$
Reliability/Cronbach's alpha***	$alpha, \alpha$	$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k}\sigma_i^2}{\sigma_T^2}\right)$

Note 1. * X_i is a score, where i = 1, 2, ..., n; and n is a sample size.
** Y_i is a score, where i = 1, 2, ..., n; and n is a sample size.
*** α is the estimate of the instrument's internal consistency reliability; k is the number of items on the instrument; i is the item indicator; i = 1, 2,..., k; σ_i^2 is the variance of item i; and σ_T^2 is the total variance of the scale.

any questions they preferred not to answer and could withdraw from the survey at any point. The survey completion rate was 75%. Survey links were unique and could only be used once. Participants could pause the survey at any point and resume later, returning to where they had left off. After completing the survey, participants were unable to submit another response.

3.12 Sample Collected

A total of 4,041 complete surveys were collected. Among these, 165 responses were submitted by Doctors of Chiropractic practicing outside the U.S. and its territories and were therefore excluded from the data analysis, per the survey exclusion criteria. Respondents who selected "Other" as their area of practice were likewise excluded. Consequently, only responses from chiropractors in the U.S. and its territories were included in the final analysis, resulting in a sample size of 3,876.

The sample represented Doctors of Chiropractic on a national level, encompassing all 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. With few exceptions, response rates from each state were proportional to the estimated number of chiropractors in that state. Table 3.9 provides detailed sample sizes by state and territory.

3.13 Importance Index

Once frequency and risk values were assigned to each item, an "importance" score was calculated by multiplying the frequency categories (ranging from 1 = Never to 5 = Daily) by the risk categories (ranging from 1 = No risk to 4 = Significant risk). This calculation generated importance scores from 1, indicating slight importance, to 20, indicating extreme importance.

The Importance Index accounts for the fact that some professional tasks may be performed frequently with low risk, while others may occur rarely but carry high risk. This index offers critical insights for test developers, helping them design competency assessments that more accurately reflect the significance of various professional tasks before licensure (Christensen et al, 2015). Table 3.10 outlines the ranges and interpretations of the Importance Index.

3.14 Data Analysis

Descriptive statistical methods were applied to analyze the data, using both numerical and graphical approaches. Numerical analyses included averages, standard deviations, ranges, and percentages. Graphical analyses involved histograms, bar charts, pie charts, and plots. When relevant, correlation coefficients were also calculated. Reliability measures were computed for the domains discussed in Chapter 6.

Table 3.11 provides the formulas used for calculating the statistical measures that were applied to present the results.

Reliability, as a foundational requirement for validity, is essential in ensuring that the measurement accurately reflects the intended construct (Crano et al., 2014). As part of the validation process, assessing the reliability of survey responses is critical. In this study, Cronbach's alpha coefficients (Cronbach, 1951) were employed to estimate reliability, with these coefficients reported at the outset of each subsection.

3.15 Limitations of Study Methodology

This study's methodology was robust, but it is important to note some limitations. These include non-experimental design, potential selection and response bias, and the self-reported nature of the data. However, the strengths of the study, including a large sample size and study design, help to mitigate some of these limitations. More details of the limitations are included in Chapter 9.

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Chapter Four

Demographic Portrait of the Chiropractic Profession in the U.S.

According to a study by the World Federation of Chiropractic, most of the world's chiropractors practice in the U.S (Stochkendahl et al., 2019). As of 2017, it was estimated that 77,000 chiropractors out of nearly 104,000 worldwide, were in the U.S. (Stochkendahl et al., 2019). Knowing the statistical characteristics of chiropractors can shed light on important traits and trends in data that describe the chiropractic profession.

4.1 Sex

The chiropractic profession in the U.S. continues to diversify in terms of sex, reflecting broader societal trends toward inclusivity. An estimated 30% of chiropractors were female, while 63% were male, with 7% of respondents who preferred not to disclose their sex. When looking at the ratio of male to female chiropractors, these findings were similar in 2019. However, the data since 1991 show a consistent trend towards a more equal representation. The distributions of chiropractors by sex over the past three decades are presented in Figure 4.1.

4.2 Sex by Age

The distribution of male and female chiropractors in the U.S. is different among generations. Among practitioners under the age of 30, the

representation of men and women is equal. This supports the trend seen in the overall data in Figure 4.1 and shows a tendency toward greater sex equality among younger professionals entering the field. In older age groups, male chiropractors outnumber their female counterparts. The most substantial gap is observed in the 60-69 and 70 and over age brackets. The distribution of male and female chiropractors by age is presented in Figure 4.2.

4.3 Sex by Years Since Chiropractic Degree

Among chiropractors who have been in practice for 0 to 10 years, males represent 28%, while females account for 15%, indicating that although males are more prevalent, the sex gap is narrower in the early-career stage. When viewing the data, it appears that the profession is changing towards a more balanced representation of the sexes. The distribution of chiropractors by sex and by years since degree is presented in Figure 4.3.

4.4 Race and Ethnicity

In terms of race and ethnicity, the chiropractic profession remains predominantly White, with 69% of chiropractors identifying in this category. However, representation among other racial and ethnic groups is growing: African American (3%), Asian/Pacific Islander (5%), Hispanic/Latinx (6%), Middle Eastern or North African (2%), Native American or Alaska Native (1%), and those identifying as multiethnic (2%). Additionally, 12% reported other or preferred not to disclose their race/ethnicity. The results as shown in figure 4.4 reflect a 10% increase in non-White chiropractors compared to 2019.

The increase in non-White chiropractors demonstrates the profession's movement toward greater inclusivity and better representation of the

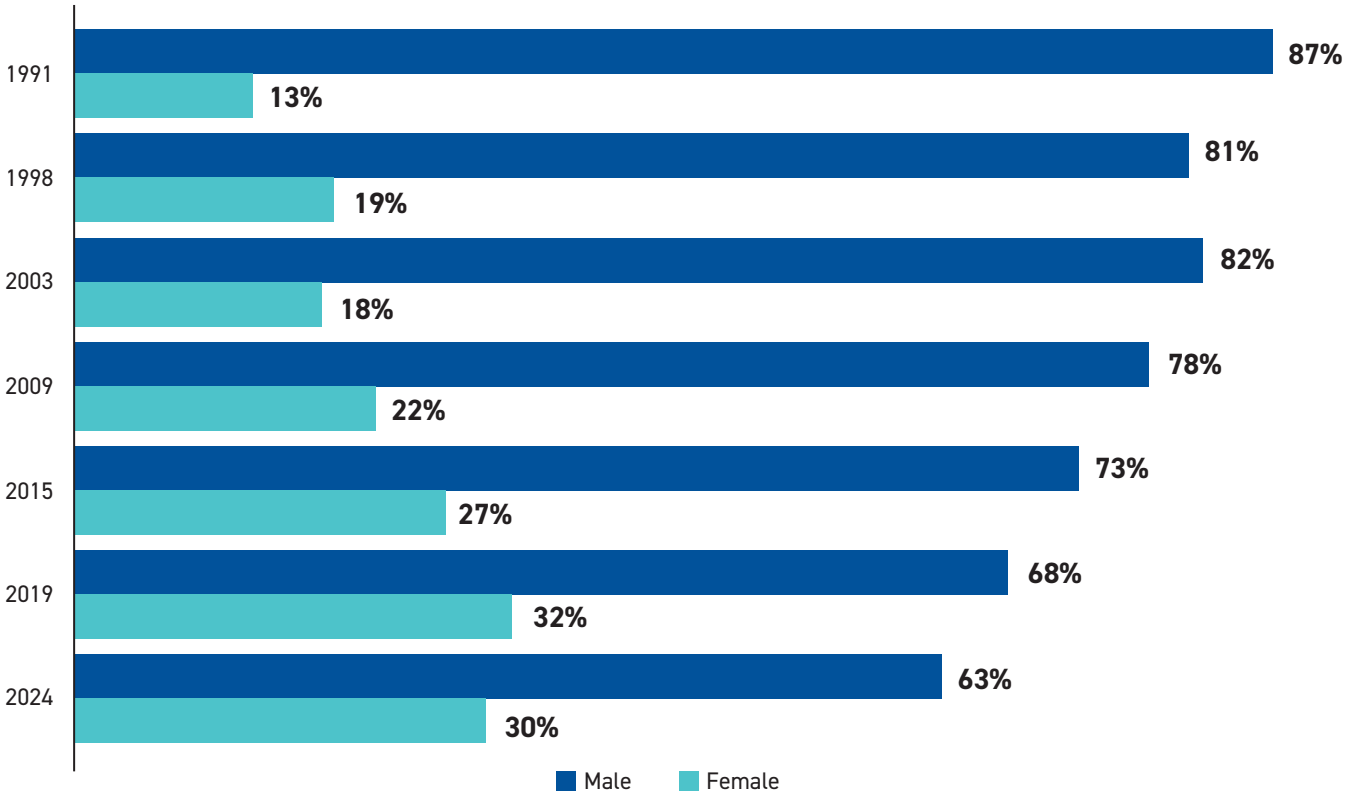

Figure 4.1. Sex composition of the sample by survey year

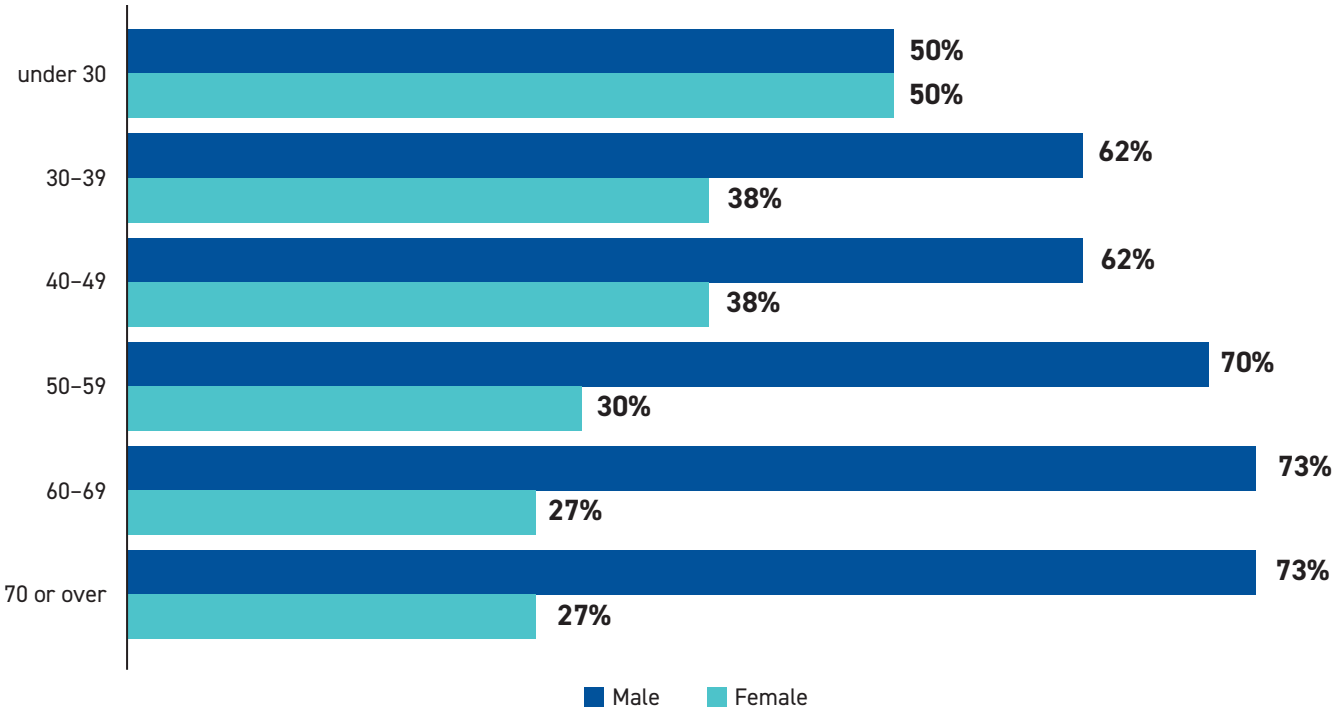

Figure 4.2. Sex composition of the sample by age

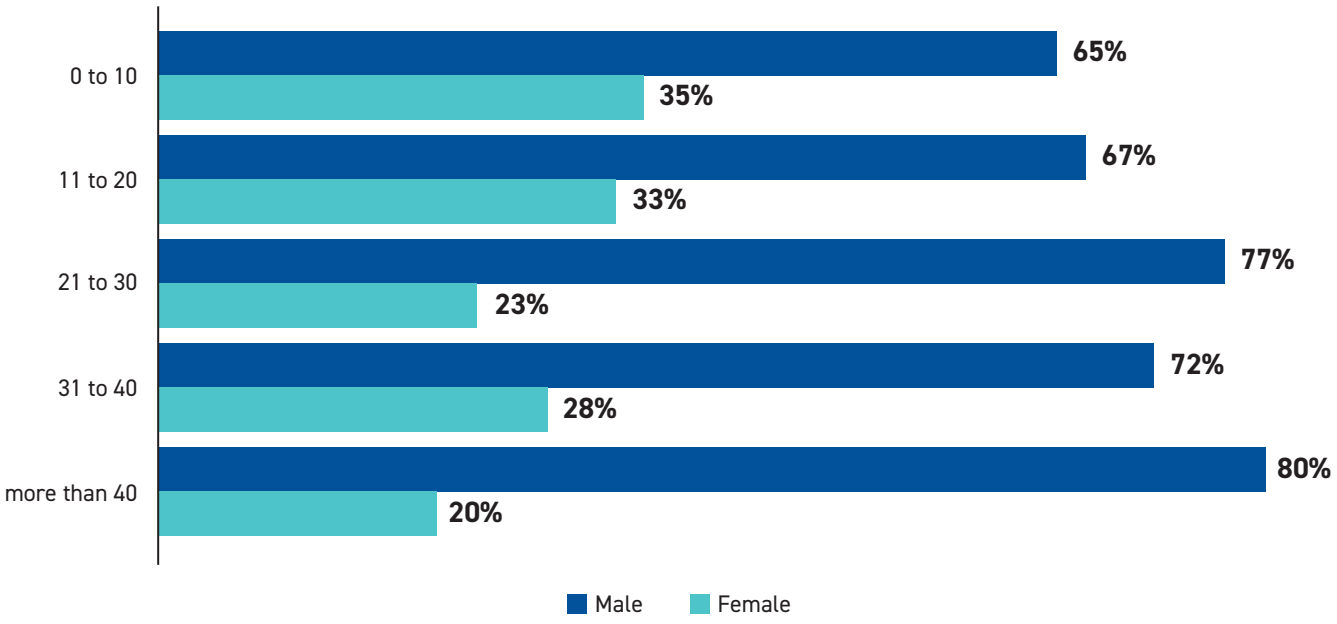

Figure 4.3. Sex composition of the sample by years since chiropractic degree

population of the U.S. Although this ratio has not yet reached the levels reflective of the U.S. population, the trend is encouraging. For example, U.S. Census data shows that non-White individuals make up approximately 40% of the general population (U.S. Census Bureau, 2024). A gap remains for the chiropractic profession to better represent the population. Nevertheless, initiatives aimed at promoting chiropractic education in a variety of geographic and socioeconomic areas,

	1991	1998	2003	2009	2014	2019	2024
Asian/Pacific Islander	1%	2%	3%	3%	3%	2%	5%
Black or African American	1%	1%	1%	1%	1%	2%	3%
White	96%	94%	92%	85%	89%	91%	69%
Hispanic/Latinx	2%	2%	2%	1%	2%	3%	6%
Native American/Alaska Native	0%	1%	1%	0%	0%	1%	1%
Middle Eastern or North African	0%	0%	0%	0%	0%	0%	2%
Multiethnic	0%	0%	2%	9%	4%	0%	2%
Other/Prefer not to say	1%	2%	2%	1%	0%	2%	12%

Figure 4.4. Race and ethnic composition of the sample by survey year

may be contributing to these improvements (Chiropractic Educators Research Forum, 2022; Johnson, et al, 2024).

Efforts to enhance diversity in the chiropractic profession also parallel trends in other healthcare professions, which have emphasized inclusivity as a critical factor in improving health outcomes for diverse patient populations. Research has shown that provider diversity improves patient satisfaction and outcomes, particularly in underserved populations (Gomez & Bernet, 2019; Nelson, 2002). The chiropractic profession's increasing diversity is a promising step toward addressing healthcare disparities and ensuring culturally competent care for a broader demographic. The longitudinal trends of race and ethnicity distribution are presented in Figure 4.4.

4.5 Age

The age distribution of chiropractors in the U.S. resembles distributions in previous surveys. The 30–39 years age group accounted for 14%, and the smallest segment, chiropractors under the age of 30, represented 5%. This was closely followed by chiropractors aged 40–49 years, making up 22%. Fifty-eight percent of chiropractors are 50 years of age or older. The largest age group comprised those aged 50–59 years, accounting for 25% of the population. Chiropractors aged 60–69 years constituted 22%, while those aged 70 years or over represented 11%. Age is detailed in Figure 4.5.

4.6 Chiropractic Degree

To become a licensed chiropractor in the U.S., prospective candidates must complete a Doctor of Chiropractic (DC) degree, a professional program that typically requires four to six years of study, among other requirements. The curriculum includes foundational sciences such as anatomy, physiology, and biochemistry, along with advanced coursework in diagnosis, chiropractic techniques, radiology, and clinical practice. Students also undergo extensive hands-on training in clinical settings to prepare for patient care (Bureau of Labor Statistics, 2024).

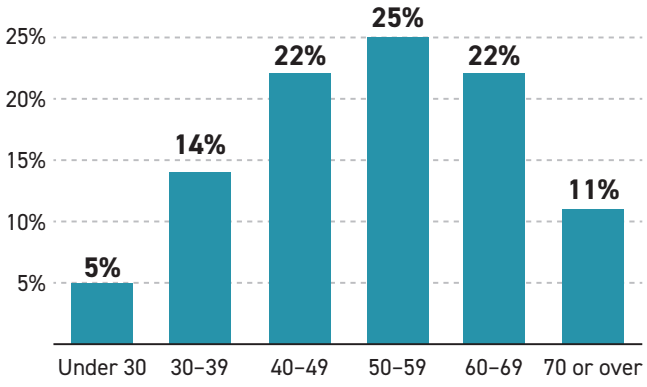

Figure 4.5. Age composition of the sample

In the survey conducted in 2024, respondents were asked to indicate the educational institution from which they obtained their DC degrees. All chiropractic degree granting programs in the U.S. that had produced graduates by the time the survey was distributed are listed in Table 4.1.

4.7 Post-Graduate Diplomate Status

Specialty councils and specialty certification boards play an important role by advancing the knowledge and expertise of practicing chiropractors. They provide pathways for chiropractors to develop advanced competencies in specific areas

Table 4.1 Chiropractic programs as reported by respondents

Institution	2009	2014	2019	2024
Canadian Memorial Chiropractic College	0.10%	0.10%	0.20%	0.02%
Cleveland University-Kansas City	4.10%	4.80%	2.40%	2.01%
Cleveland Chiropractic College-Los Angeles	1.20%	2.80%	1.40%	4.28%
Life Chiropractic College West	3.60%	2.70%	2.10%	2.99%
D'Youville College	—	—	0.10%	0.20%
Keiser University	—	—	—	0.10%
Life University	11.70%	10.20%	14.20%	18.79%
Logan University	9.40%	6.90%	12.30%	10.07%
National University of Health Sciences	7.60%	9.60%	8.10%	5.39%
Northeast College of Health Sciences	7.90%	6.80%	6.65%	13.03%
Northwestern Health Sciences University	5.50%	5.90%	6.60%	7.66%
Palmer College of Chiropractic, Davenport	21.60%	20.20%	19.80%	13.49%
Palmer College of Chiropractic, Florida	0.50%	0.60%	2.00%	1.94%
Palmer College of Chiropractic, West	4.50%	3.20%	3.30%	3.73%
Parker University	6.40%	4.40%	5.60%	2.78%
Sherman College of Chiropractic	2.30%	3.60%	2.20%	1.95%
Southern California University of Health Sciences	4.70%	5.80%	3.40%	5.28%
Texas Chiropractic College	3.50%	5.10%	4.20%	0.84%
University of Bridgeport	0.60%	0.40%	0.20%	1.70%
Universidad Central del Caribe	—	—	—	0.01%
University of Western States	3.90%	4.50%	4.50%	3.06%
Other	0.90%	2.40%	0.85%	0.70%

of healthcare, such as orthopedics, pediatrics, sports medicine, radiology, and neurology, among others (Krupp & Daniels, 2017; Schut, 2024).

This emphasis on postgraduate specialization aligns with broader trends in healthcare, where professionals across disciplines are increasingly seeking advanced certifications to meet the growing complexity of patient care needs. Specialty certification within chiropractic reflects the profession's commitment to excellence and adaptability in an evolving healthcare landscape. Furthermore, these certifications provide a framework for chiropractors to collaborate effectively with other healthcare professionals in multidisciplinary settings, offering specialized care that complements broader treatment plans (Daniels, Krupp, & Hatch, 2017).

Respondents were asked whether they obtained a post-graduate diplomate status (or equivalent) through a specialty board, council, academy, college, or association. The results revealed that approximately half of chiropractors pursued such certifications to further their professional development and better serve their patients. There were 20% who reported having been awarded diplomate status (or equivalent), 17% working toward such status, 13% reporting other, and 50% reporting none. The most pursued specialties included rehabilitation, neurology, orthopedics, chiropractic internists, and sports chiropractic. Figure 4.6 provides details on the prevalence of additional post-doctoral certification.

4.8 Level of Non-Chiropractic Education

Survey respondents ranged in years since graduation from 0 to more than 40 years. Consequently, the level of non-chiropractic education varied in the sample. Entrance requirements for chiropractic training in the U.S. have increased over time. The present sample contained respondents who would have had a wide range of matriculation requirements. Current standards for accreditation require matriculating students to possess a baccalaureate degree from an institution accredited by

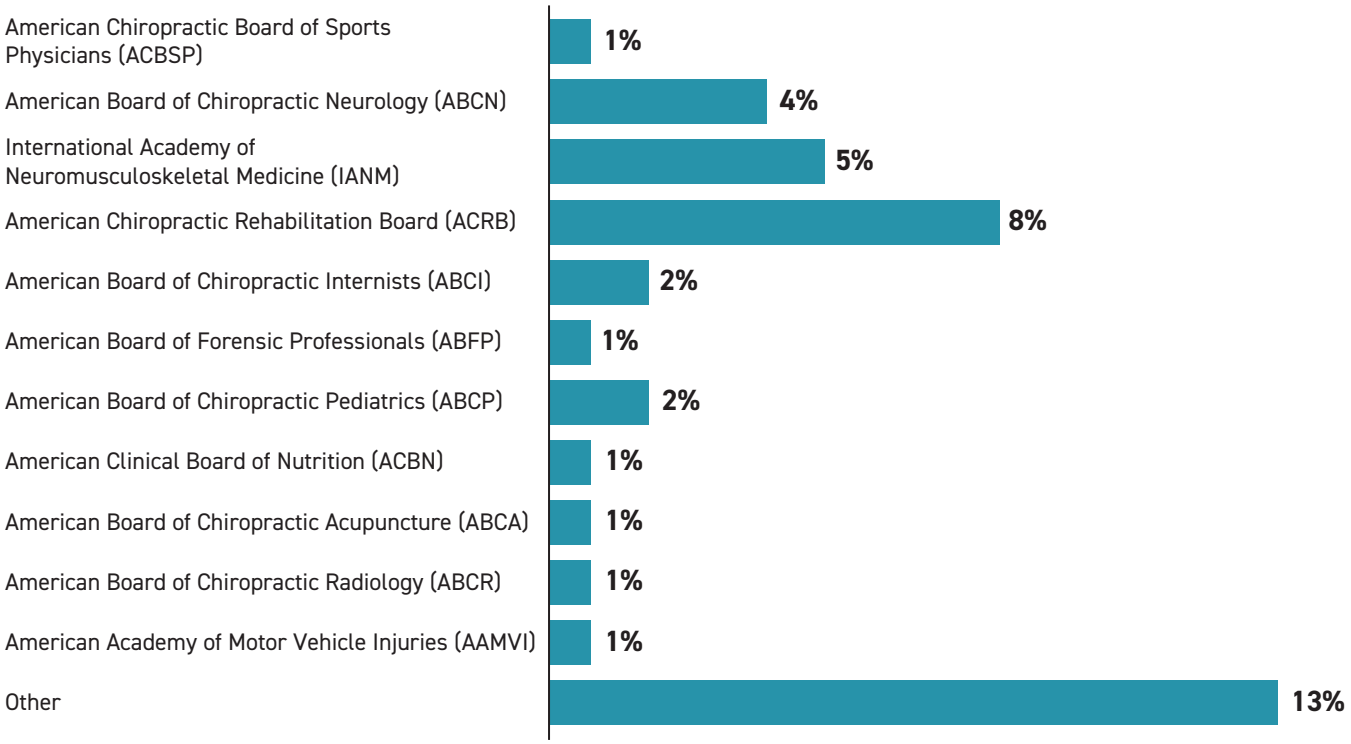

Figure 4.6. Types of certifications reported, some respondents reported multiple certifications

an agency recognized by the U.S. Department of Education or an equivalent foreign agency or 90 semester units with various conditions (CCE Accreditation Standards, 2025). Entry requirements enhance the profession's credibility and ensure future chiropractors have the knowledge needed to meet complex healthcare demands (World Federation of Chiropractic, 2024).

The majority of respondents (65%), reported holding a bachelor's degree, highlighting the prevalence of undergraduate education as a foundation before entering chiropractic programs. A smaller proportion, 11%, had earned a master's degree, while 7% had completed a doctoral degree such as a Ph.D. Other educational accomplishments included associate degrees (3%), other healthcare degrees (8%), and some with college education but no degree (2%). A small percentage (4%) listed "other" as their highest level of non-chiropractic education. The level of non-chiropractic education is presented in Figure 4.7.

The distribution of non-chiropractic degrees among chiropractors by years since earning their degree indicates the prevalence of bachelor's degrees among younger cohorts. Chiropractors who have been in practice for 0 to 10 years show the highest proportion of bachelor's degree holders (24.7%), which then gradually declines to 16.4% in the 11 to 20-year group and further decreases to 7.0% among those with 21 to 30 years of experience. This pattern suggests that a bachelor's degree has become the dominant entry level of education for recent graduates. These findings support the trend that chiropractors in the U.S. are entering the profession more educated than ever before.

Additionally, the data reveal a higher proportion of doctoral degree holders (3.4%) in the 0 to 10-year category. This finding could be explained by professionals who transitioned from other fields. The level of non-chiropractic education by years since degree is shown in Figure 4.8.

4.9 Years Since Degree/Years in Practice

The respondents were spread across various career stages. For instance, 10% received their degree 11–15 years ago, 15% between 16–20 years, and 15% between 21–25 years ago, representing a considerable portion of mid-career professionals. Another 13% had earned their degree 26–30 years ago. Nearly one-third of the sample was comprised of chiropractors with more than 3 decades of experience. Ten percent had their degree for 31–35 years, 11% for 36–40 years, and 10% for more than 40 years, reflecting a substantial group of long-standing, experienced practitioners. The distribution of respondents by the year since the degree is presented in Figure 4.9.

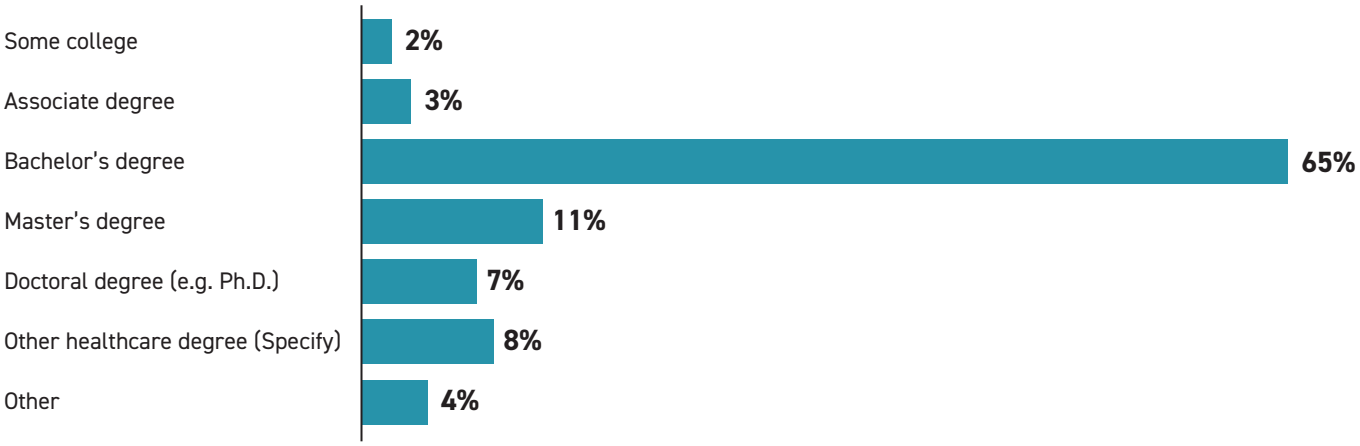

Figure 4.7. Level of non-chiropractic education

	0 to 10	11 to 20	21 to 30	31 to 40	more than 40
Some college	4.6%	3.4%	1.7%	0.6%	0.2%
Associate degree	2.9%	2.1%	0.9%	3.5%	0.1%
Bachelor's degree	24.7%	16.4%	7.0%	0.5%	0.5%
Doctoral degree	3.4%	2.1%	0.7%	0.6%	0.1%
Master's degree	5.3%	4.2%	1.6%	0.2%	0.2%
Other	2.0%	1.2%	0.6%	0.7%	0.0%
Other healthcare degree	3.7%	2.6%	1.1%	0.8%	0.1%

Figure 4.8. Level of non-chiropractic education by years since degree

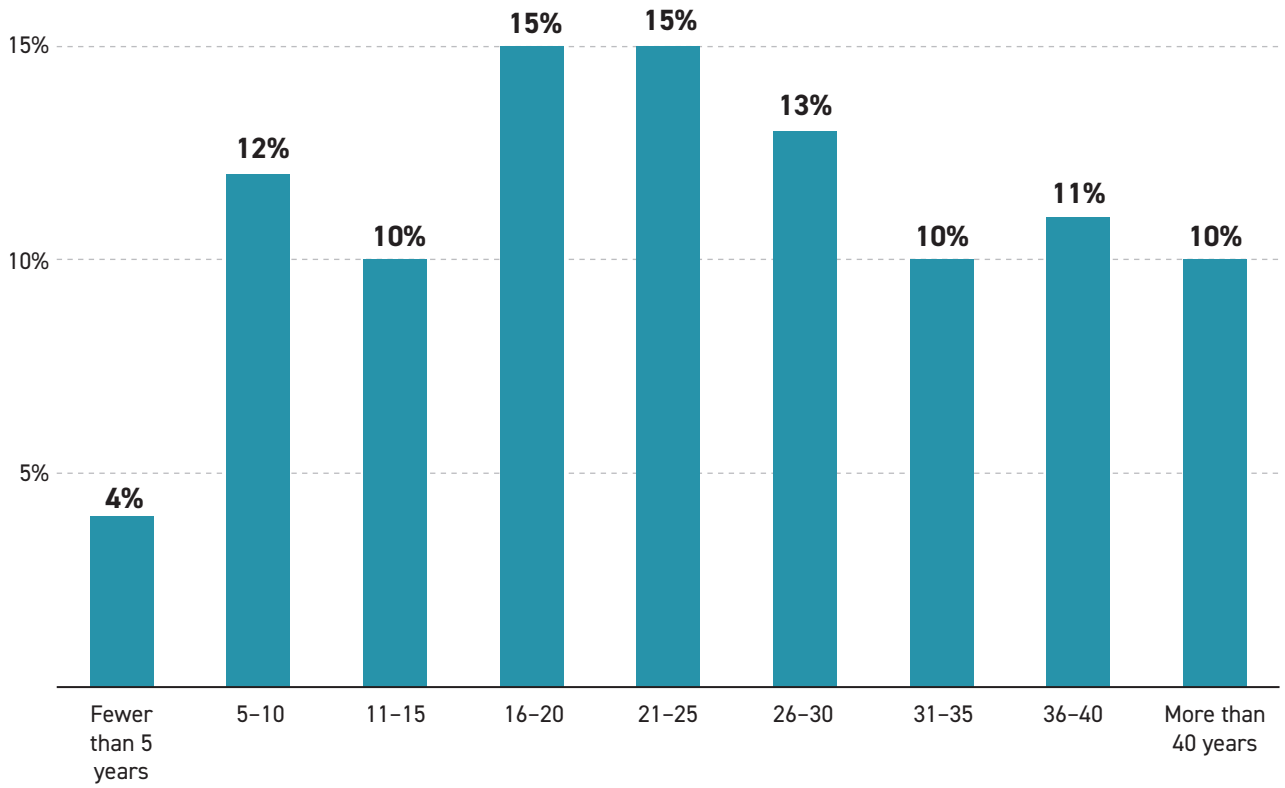

Figure 4.9. Years since degree/Years in practice

4.10 Income

Respondents were asked "What is your annual adjusted gross income from chiropractic practice?" The median annual income for chiropractors practicing in the U.S. was $125,000. The most common income ranges were $50,000–$100,000 (20%) and $100,001–$150,000 (19%). Additionally, 15% earned between $150,001 and $200,000, while 13% fell in the $200,001–$250,000 range. A smaller percentage of chiropractors achieved higher incomes, with 7% earning between $250,001 and $350,000, 5% earning between $350,001 and $500,000, and 8% reporting incomes exceeding $500,000 annually. Respondents may have had a variety of interpretations of this question, which could result in potential reasons for this variation. It may reflect differences in practice size, location, patient volume, years of experience, years since obtaining a

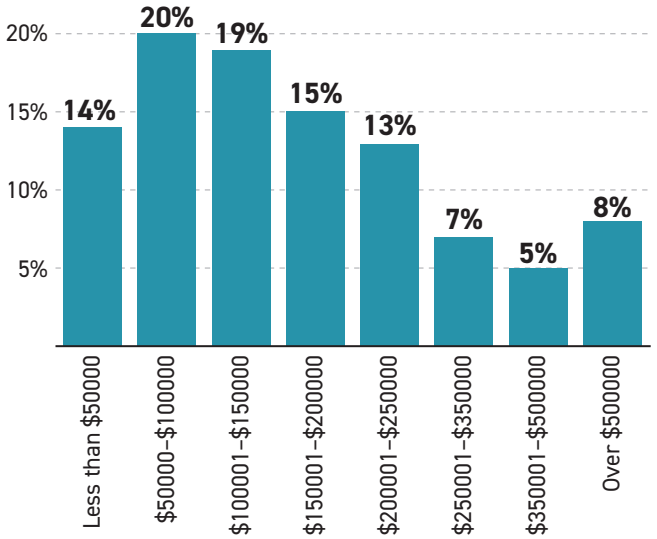

Figure 4.10. Income distribution for chiropractors practicing in the U.S.

degree, number of practices owned and worked at, number of associates in the practice, or other reasons. Figure 4.10 presents the income distribution reported by chiropractors in the U.S.

The income levels for chiropractors across states vary substantially, with some regions offering higher earnings than others. States such as Michigan ($225,000), New Jersey ($200,000), and several others including Alabama, North Dakota, South Dakota, Oklahoma, Tennessee, Virginia, and Wyoming report median incomes of $175,000. Chiropractors in states such as South Carolina, Utah, and Vermont earn $75,000, while several other states, including Alaska, Idaho, Kentucky, Mississippi, Montana, Nebraska, and Puerto Rico, report median incomes of $100,000. Figure 4.11 provides details on median income for practicing chiropractors by state.

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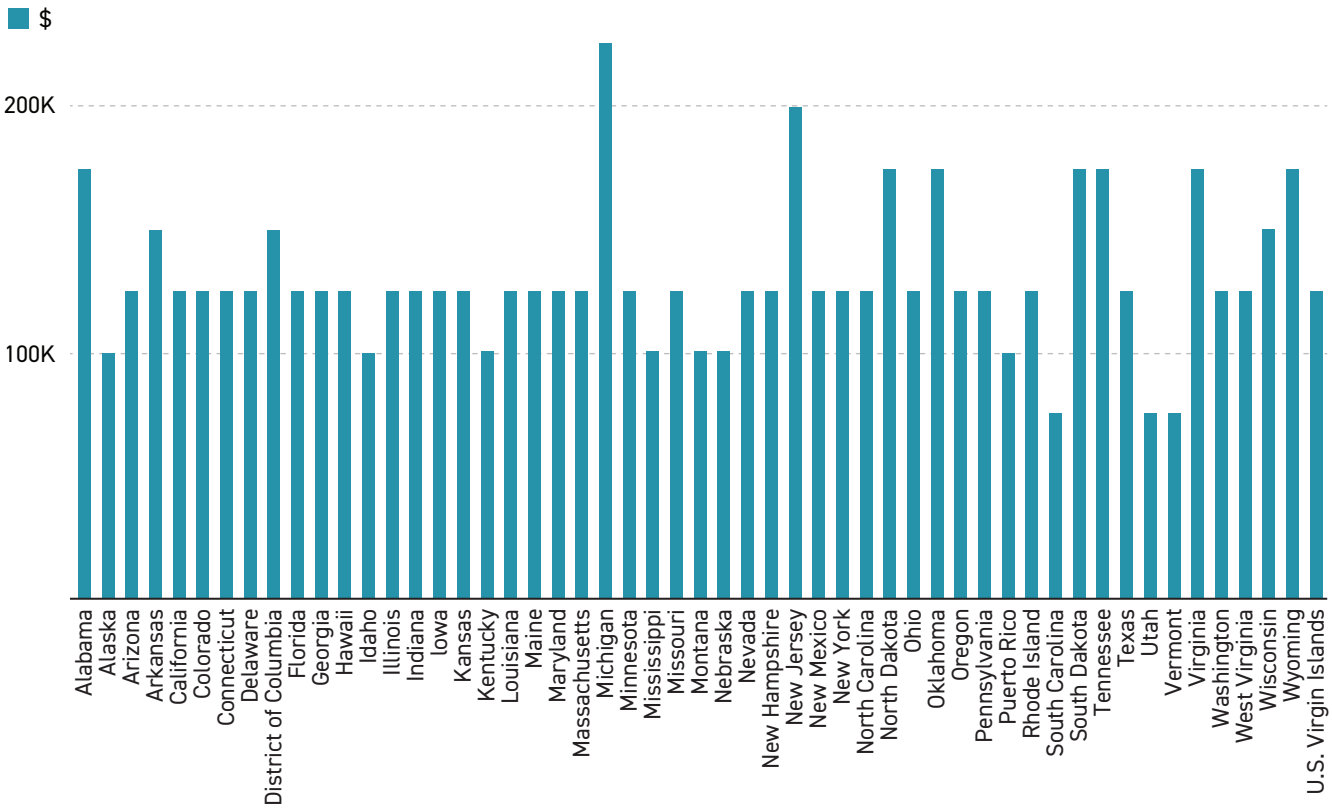

Figure 4.11. Median income by state for chiropractors practicing in the U.S. and territories

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Chapter Five

Practice Characteristics, Continuing Education, Reimbursement Categories, and Patient Demographics

Doctors of Chiropractic in the U.S. are first contact healthcare providers; thus, patients do not need a referral to access care. They most commonly work in private practices, which may be solo or group-based (Himelfarb et al., 2020), but they are increasingly integrated into multidisciplinary healthcare settings alongside other healthcare professionals. Integrated environments include hospitals (Branson, 2009; Salsbury, Goertz, Twist, & Lisi, 2018; Vining et al., 2018), rehabilitation centers (Vining et al., 2018; Shannon et al., 2018), and health centers affiliated with universities or hospitals (Gliedt et al., 2024; Peranson et al., 2024). A growing number of chiropractors provide care in interprofessional wellness clinics (Blanchet, 2007), onsite/near-site corporate health centers (Foundation for Chiropractic Progress, 2015), and federally qualified facilities (Albertson et al., 2024) allowing for collaborative patient care and broader outreach to patients in a variety of communities. Additionally, chiropractors may engage in practices that focus on specific populations such as athletes, children, or older adults (Chang, 2014; Stochkendahl et al, 2019).

5.1 Practice Settings

Most (82%) chiropractors reported working in a chiropractic office, whether a single DC office 49% or multi-DC office (36%). Chiropractors working in multi-disciplinary healthcare facilities represented 12% of the respondents. Practices in specialized environments, such as Veterans Administration (VA) facilities (1%) or hospital-affiliated health

centers not associated with the VA or the Department of Defense (1%), remained relatively rare in 2024 (see Figure 5.1).

5.2 Business Role in Practice

Most chiropractors (55%) report being sole proprietors, reflecting strong presence of independent practice ownership in the profession. Other roles included being an associate or employee (23%), business partner (11%), and contractor (5%), with 6% noting "other" (see Figure 5.2).

5.3 Focus of Primary Practice

Chiropractors reported that they mostly concentrated on general chiropractic practice (73%) and spinal care (72%). Additionally, a substantial portion of respondents identified whole health (46%), community health (31%), and rehabilitation (23%) as primary focuses of their practice (see Figure 5.3).

5.4 Weekly Hours of Patient Care

Chiropractors in the U.S. typically spend most of their workweek providing direct patient care. Many chiropractors balance patient care with administrative duties, professional development, and community outreach. The Bureau of Labor Statistics similarly notes that chiropractors generally work full-time, often during regular office hours, though some extend their availability into evenings or weekends to accommodate patient schedules (Bureau of Labor Statistics, 2023).

The data on hours per week dedicated to patient care, including documentation, reveals a range of professional engagements among chiropractors. The largest proportion of respondents

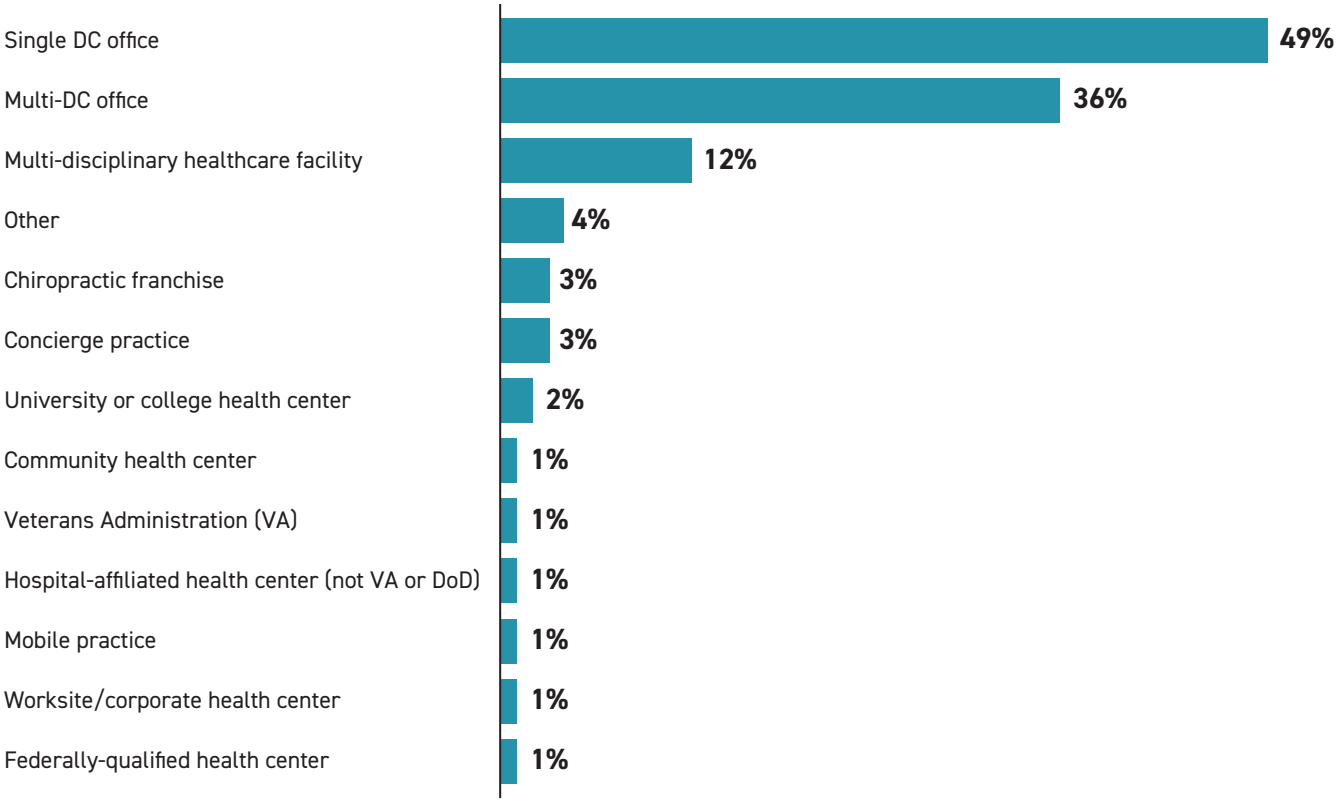


Figure 5.1. Primary practice setting. Respondents were allowed to select all that apply; thus, some may work in more than one type of practice setting

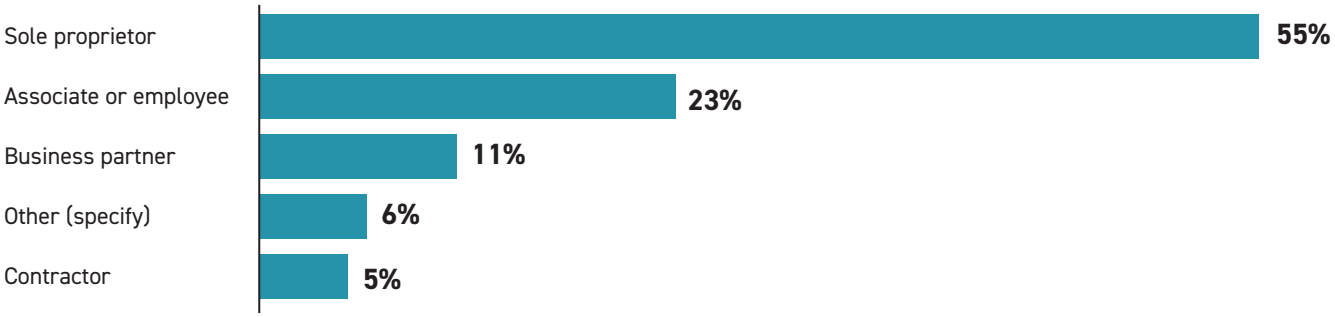


Figure 5.2. Role in the primary office where chiropractor works

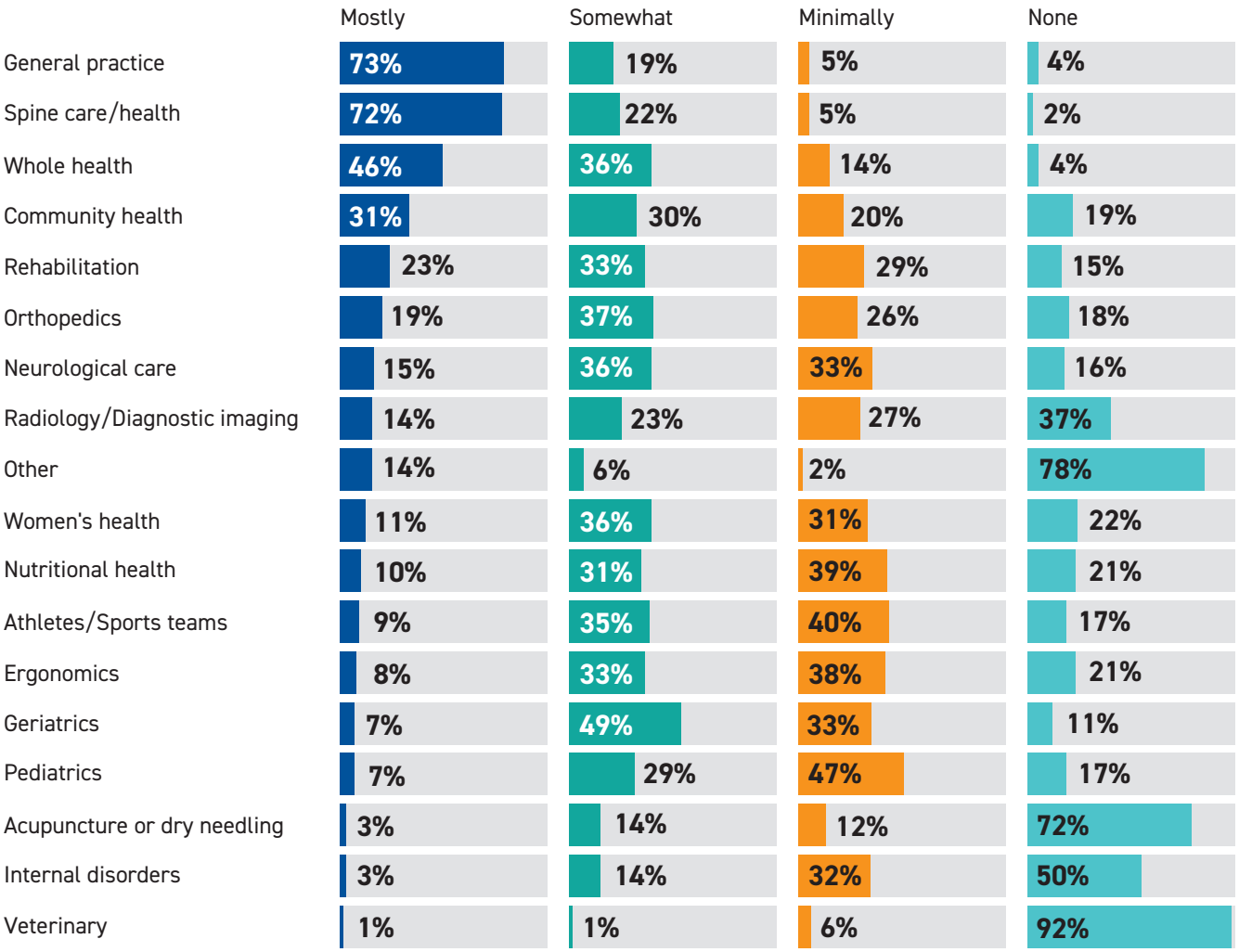


Figure 5.3. Focus of primary practice. Respondents were allowed to select all that apply; thus, some may focus on more than one area

(40%) reported providing 30–39 hours of patient care weekly, reflecting a full-time workload in the field. A sizable number (23%) indicated spending 40–49 hours per week. Extended patient care hours are less common, with 6% reporting 50–59 hours and just 1% exceeding 60 hours per week. All respondents in this sample reported that they work full-time, thus for those reporting fewer hours

of patient care, the remaining time was assumed to be dedicated to other professional activities. (see Figure 5.4).

5.5 Weekly Hours of Practice Functions

On average, chiropractors allocated the majority of their working hours—37 hours per week—to direct patient care and treatment. Documentation of care, an essential component for maintaining patient records and compliance, accounted for 10 hours per week. Additionally, 7 hours per week were devoted to business management activities, such as personnel oversight, marketing, and other administrative responsibilities. Details are presented in Figure 5.5.

5.6 Continuing Education

Continuing education (CE) is a requirement to maintain licensure for chiropractic practice in the

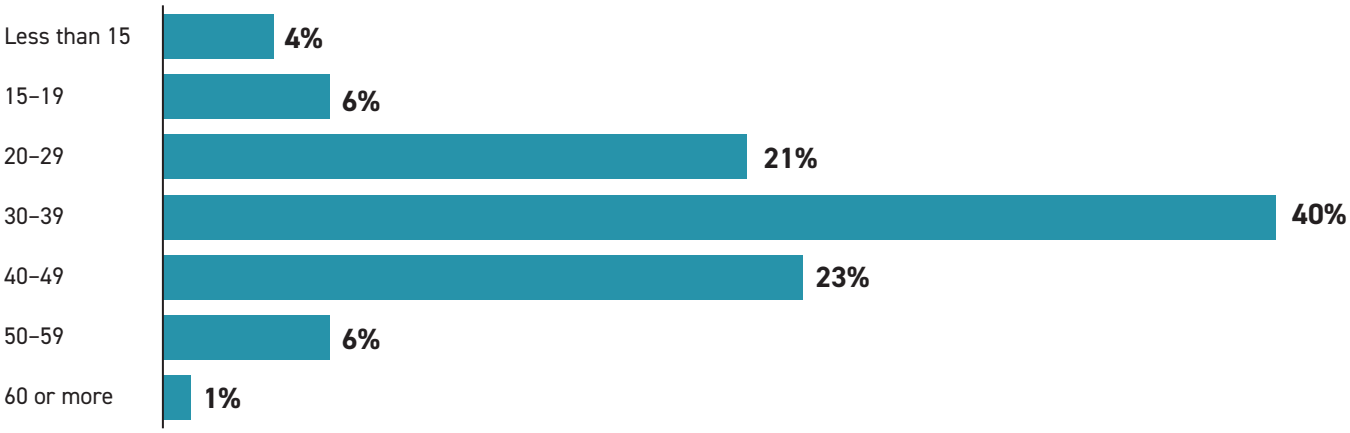


Figure 5.4. Weekly hours of patient care, including documentation

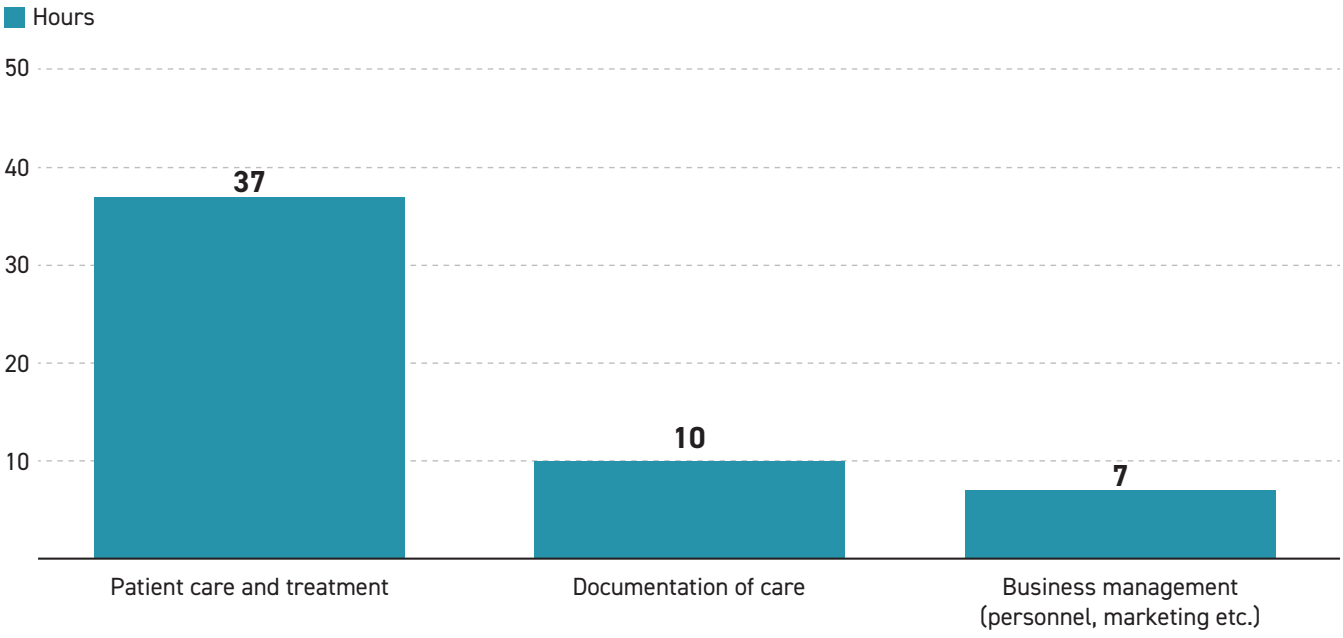


Figure 5.5. Average weekly hours of practice functions

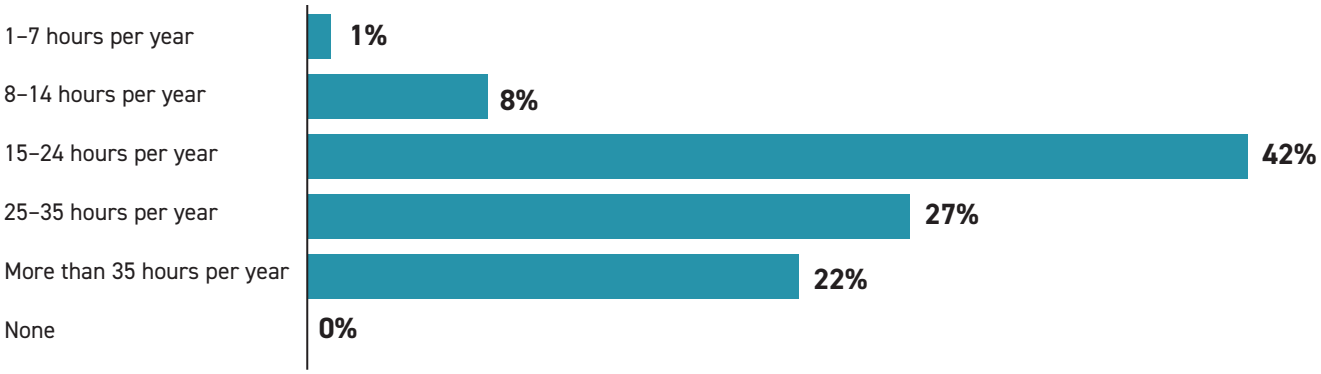


Figure 5.6. Percentage of chiropractors completing annual hours of CE (on average) over the past 5 years

U.S., designed to ensure practitioners maintain current knowledge in clinical topics and regulatory standards. CE requirements vary by state. These requirements often include coursework on specific topics, such as ethics, risk management, state laws, chiropractic technique, diagnosis, diagnostic imaging, and other clinical topics. Many states have required topics for at least some of the continuing education hours. The number of required hours of CE varies by jurisdiction. Some chiropractors who are board certified require additional hours in their specialty. Chiropractors fulfill CE obligations through accredited seminars, workshops, online courses, or conferences, many of which are approved by the Federation of Chiropractic Licensing Boards or state boards (Federation of Chiropractic Licensing Boards, 2024).

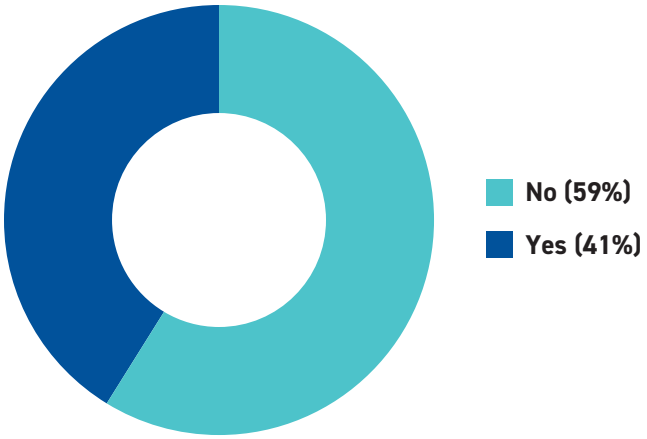


Figure 5.7. Providing diagnostic imaging in chiropractic office

The annual hours of professional CE obtained by chiropractors over the past five years reflected a significant commitment to lifelong learning within the profession. The majority of respondents averaged between 15 and 35 hours of CE annually. Detailed distribution of CE hours is presented in Figure 5.6.

5.7 Diagnostic Imaging in Chiropractic Offices

Chiropractors in the U.S. commonly utilize diagnostic imaging as a tool in assessing and managing musculoskeletal and spinal conditions (Himelfarb, et al, 2020). Radiographic imaging is one of the most frequently used diagnostic imaging modalities (Jenkins et al., 2018; Johnson, 2019). Other imaging techniques, such as diagnostic ultrasound, magnetic resonance imaging, and computed tomography, are used less frequently. Figure 5.7 illustrates the distribution of chiropractors who offer in-office diagnostic imaging services compared to those who do not.

5.8 Referrals to Hospitals for Diagnostic Services

Respondents were asked if they were able to refer to hospitals for diagnostic services. There were 72% of chiropractors who reported that they were able to refer patients to hospitals for diagnostic services. However, 28% of respondents indicated that they did not have this capability (Figure 5.8).

5.9 Urbanicity

The largest proportion of chiropractic practices are located in urban areas where populations exceed 100,000 people, accounting for 36% of respondents. Suburban settings, typically on the outskirts of large cities, host 31% of practices. Small cities or towns, characterized by moderate population density, make up 24% of practice locations. Practices situated in rural areas with fewer than 10,000 residents constitute 8%, highlighting a 2.6% increase compared to the 2019 data. Detailed distribution is presented in Figure 5.9.

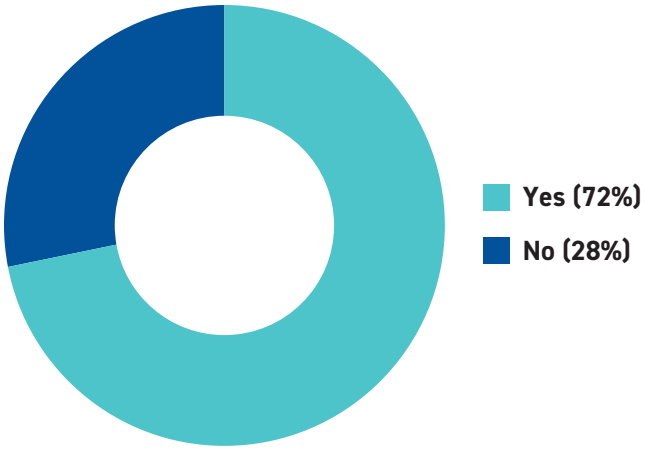


Figure 5.8. Ability to refer to hospitals for diagnostic services

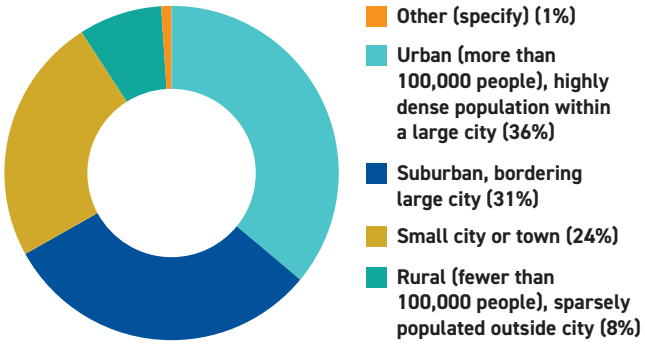


Figure 5.9. Population density of the community where primary practice is located

5.10 Number of Weekly Patient Visits

The average number of patient visits provided per chiropractor per week was 100. The majority of weekly visits was reported to be between 20 and 100, with one-third of respondents providing 51–100 patient visits. The largest percentage of visits per week greater than the average was 21% for 101-150 visits per week (See Figure 5.10).

5.11 Reimbursement Categories

Respondents indicated that 78% of reimbursements for services came from private pay and private health insurance. The majority was through private pay/cash payments (41%), then private insurance. Medicare and personal injury insurance each contributed 9% of reimbursements (see Figure 5.11).

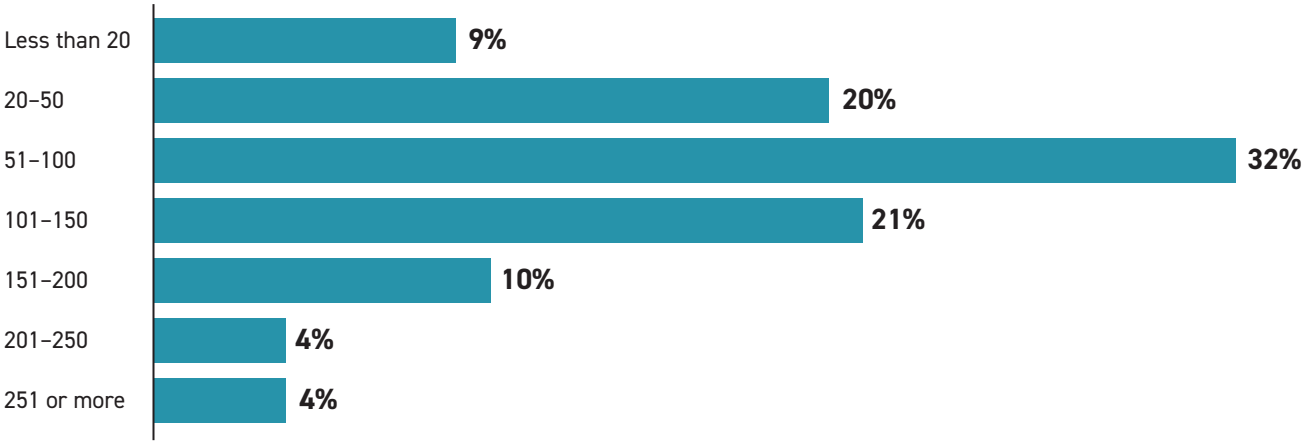
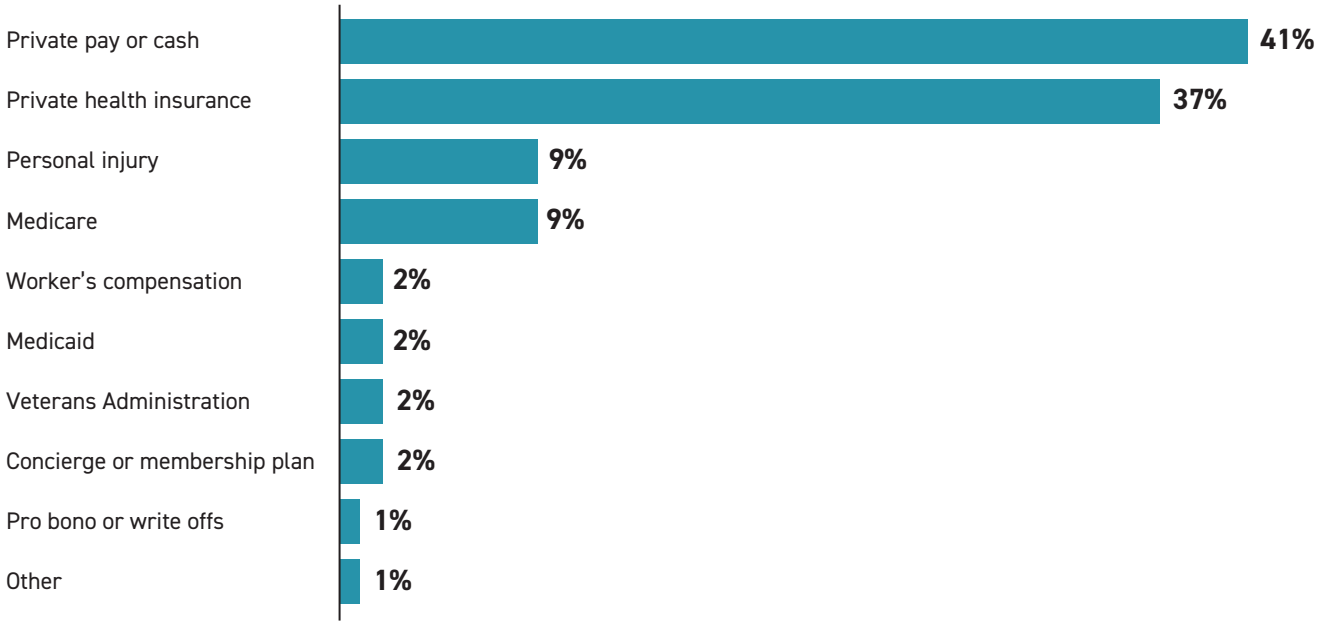


Figure 5.10. Number of patients visits per week



Categories are not mutually exclusive and do not sum to 100%.

Figure 5.11. Percentage of chiropractic patients by reimbursement categories (select all that apply)

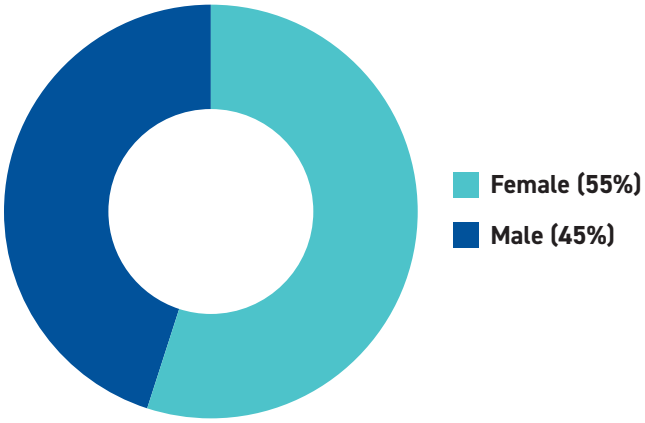


Figure 5.12. Distribution of chiropractic patients by sex

Cash/private pay payments are the most common reimbursement method for chiropractic care, reflecting the willingness of patients to pay directly for services that may not be covered by insurance or public programs (Leach, 2020). This payment method has been reported to be prevalent among patients seeking maintenance or wellness care (Cigna, 2024).

Private health insurance is the second most common reimbursement method for chiropractic services, with plans covering chiropractic care as part of their benefits package. Chiropractic services are increasingly being integrated into employer-sponsored health plans, with a 12% increase between the 2020 and 2025 Practice Analyses. This may be driven by the cost-effectiveness of chiropractic care for managing musculoskeletal conditions (Whedon et al, 2017; American Chiropractic Association, 2024).

Reported Medicare and Medicaid reimbursements have decreased from 14% in 2019 to 11% in 2024. Medicare is important to allow access to chiropractic for lower-income or elderly populations who rely on public health programs (Centers for Medicare & Medicaid Services, 2024; Whedon, Goertz, Lurie, & Stason, 2013).

5.12 Chiropractic Patient Characteristics

Females accounted for 55% of chiropractic patients, while males represented 45% (see Figure 5.12). This finding is consistent with past reports that women make up a larger percentage of the chiropractic patient population.

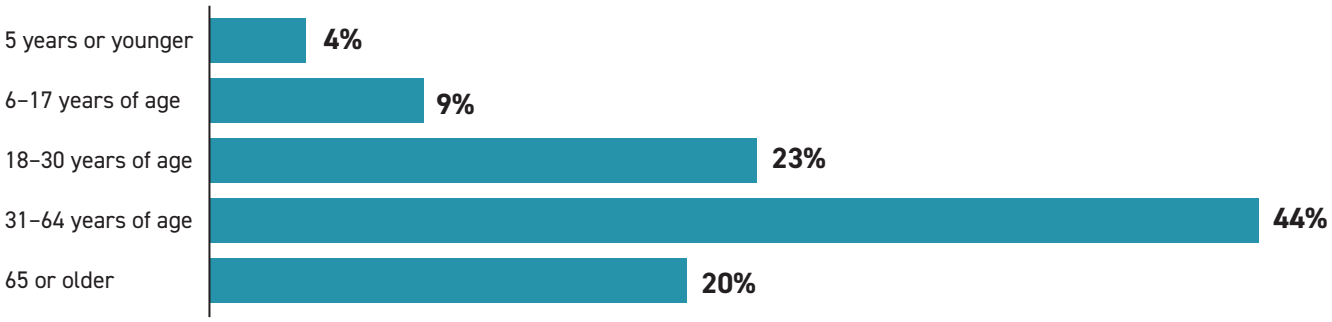


Figure 5.13. Distribution of chiropractic patients by age

U.S. chiropractors primarily see adult patients, with 87% of patients being over 18 years of age. In 2024, the majority of chiropractic patients were adults aged 31–64, accounting for 44% of cases. Pediatric patients represented 13% of reported patients. The distribution of chiropractic patients by age is presented in Figure 5.13.

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Chapter Six

Professional Functions and Treatment Procedures

This chapter outlines the professional functions of chiropractors in the U.S. The findings are organized into four subsections: Patient Assessment, Case Management, Communication Tasks, and Treatment Tasks.

As described in the methods provided in chapter 3, each survey item was measured for frequency on a scale from 1 to 5 (1 = Never, 2 = Yearly, 3 = Monthly, 4 = Weekly, and 5 = Daily). Every item was accompanied by a risk item measured from 1 to 4 (1 = No risk, 2 = Minimal risk, 3 = Moderate risk, and 4 = Significant risk). From these data, an importance index was calculated by multiplying the frequency by the risk. The Importance Index accounts for the fact that some professional tasks may be performed frequently with low risk, while others may need to be performed rarely but carry a higher risk. The ranges for importance in this Practice Analysis are minimal importance 1–4, moderate importance 5–8, high importance 9–12, very high importance 13–16, and critical importance 17–20.

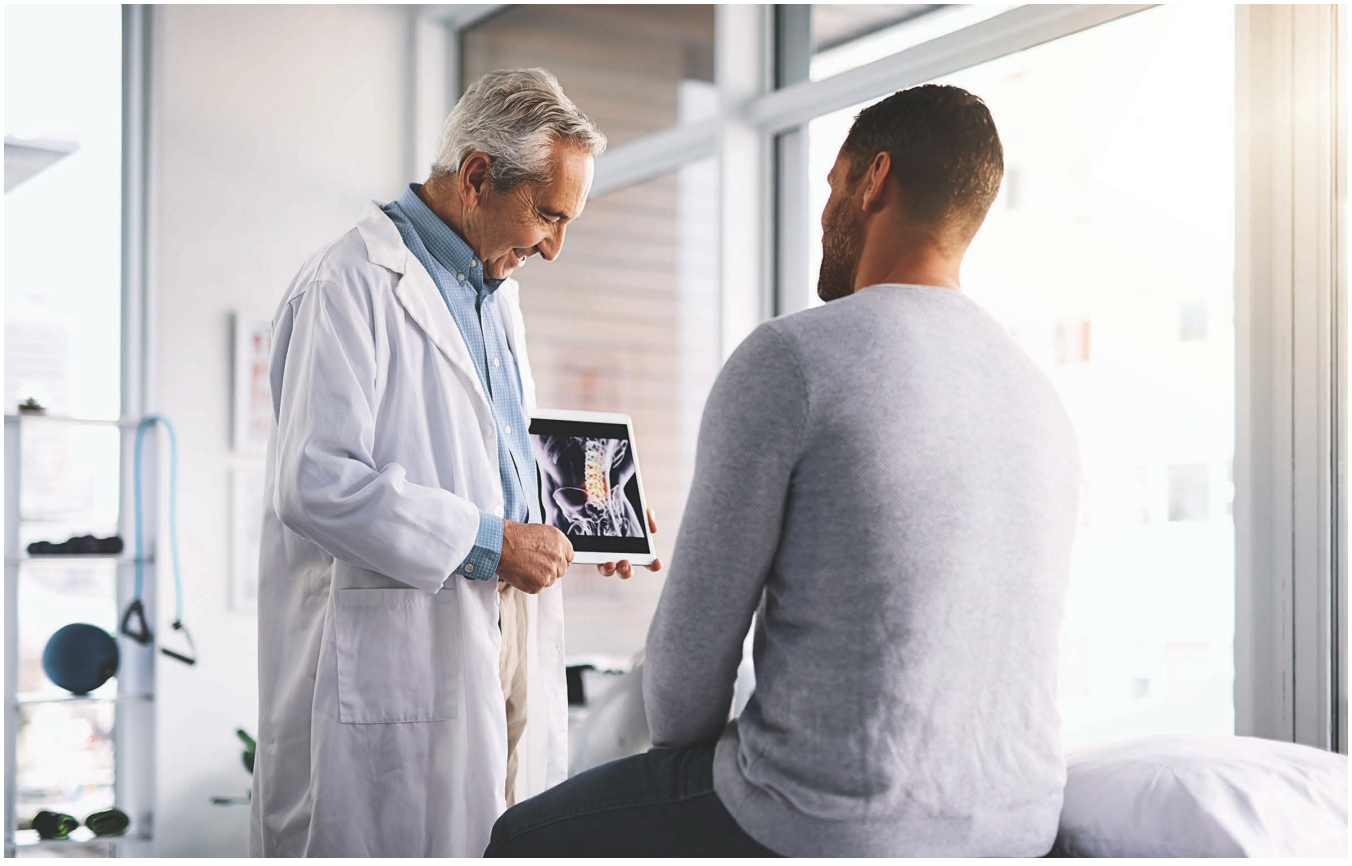

Table 6.1 Patient assessment: Averages of frequency, risk, and importance

Task	Frequency	Risk	Importance
A postural and gait analysis	4.21	2.38	10.02
A cervical, thoracic, lumbopelvic, and/or extremity palpatory evaluation	4.78	1.98	9.46
Patient-reported outcome measures (e.g., pain scale ratings and/or disability questionnaires)	3.90	2.27	8.85
A spinal examination/analysis	4.71	1.77	8.34
Problem-focused case history (i.e., limited to chief complaint)	4.53	1.76	7.97
A focused orthopedic/neurologic examination (i.e., limited to the area of complaint)	3.98	1.77	7.04
Review the results of a previously performed MRI, CT, or bone scan imaging study	3.43	1.97	6.76
Read radiographs that you did not take or order	3.31	2.04	6.75
Detailed/comprehensive case history (i.e., including: past health history, family health history, biopsychosocial history, and review of systems)	3.94	1.70	6.70
A comprehensive orthopedic/neurologic examination	3.59	1.78	6.39
Review the results of previously performed laboratory tests	2.84	2.19	6.22
Order an MRI, CT, or bone scan imaging study	2.90	2.10	6.09
Obtain and review the results of other previous specialized studies	2.82	2.14	6.03
Comprehensive physical examination (i.e., including: vital signs, EENT, cardiopulmonary, and abdominal exams)	3.05	1.88	5.73
Review the results of a previously performed NCV or EMG study	2.16	2.36	5.10
A focused EENT examination	2.03	2.31	4.69
Order blood, urine, or other laboratory tests from an outside facility	1.83	2.44	4.47
Order a nerve conduction velocity (NCV) and/or needle electromyography (EMG) study	1.68	2.49	4.18
A focused abdominal examination	1.89	2.15	4.06
Order other specialized studies (e.g., ECG, diagnostic or Doppler ultrasound, bone density, etc.) from an outside facility	1.70	2.33	3.96
A focused cardiopulmonary examination	1.66	2.01	3.34
Draw blood, collect urine, and/or perform other laboratory tests	1.35	2.38	3.21
Perform other specialized studies (e.g., ECG, diagnostic or Doppler ultrasound, bone density, etc.) in your office	1.33	2.23	2.97

Table 6.2 Patient assessment: Frequency

Task	Never	Yearly	Monthly	Weekly	Daily
A cervical, thoracic, lumbopelvic, and/or extremity palpatory evaluation	1%	2%	3%	5%	88%
A spinal examination/analysis	1%	2%	5%	10%	83%
Problem-focused case history (i.e., limited to chief complaint)	1%	2%	6%	18%	73%
A postural and gait analysis	5%	7%	10%	21%	57%
A focused orthopedic/neurologic examination (i.e., limited to the area of complaint)	2%	6%	18%	22%	51%
Patient-reported outcome measures (e.g., pain scale ratings and/or disability questionnaires)	11%	7%	15%	20%	47%
Detailed/comprehensive case history (i.e., including: past health history, family health history, biopsychosocial history, and review of systems)	4%	12%	12%	30%	42%
A comprehensive orthopedic/neurologic examination	10%	12%	20%	26%	32%
Comprehensive physical examination (i.e., including: vital signs, EENT, cardiopulmonary, and abdominal exams)	21%	20%	16%	23%	21%
Read radiographs that you did not take or order	7%	19%	27%	29%	18%
Review the results of a previously performed MRI, CT, or bone scan imaging study	3%	16%	32%	33%	16%
Review the results of previously performed laboratory tests	23%	20%	23%	19%	16%
Obtain and review the results of other previous specialized studies	16%	28%	27%	16%	13%
Order an MRI, CT, or bone scan imaging study	15%	18%	39%	21%	8%
A focused EENT examination	50%	19%	16%	9%	6%
Review the results of a previously performed NCV or EMG study	35%	31%	22%	6%	6%
A focused abdominal examination	51%	25%	14%	6%	5%
Order blood, urine, or other laboratory tests from an outside facility	55%	21%	13%	7%	4%

Table 6.2 continued

Task	Never	Yearly	Monthly	Weekly	Daily
A focused cardiopulmonary examination	60%	24%	11%	5%	2%
Draw blood, collect urine, and/or perform other laboratory tests	83%	7%	4%	4%	2%
Order other specialized studies (e.g., ECG, diagnostic or Doppler ultrasound, bone density, etc.) from an outside facility	54%	29%	11%	5%	1%
Perform other specialized studies (e.g., ECG, diagnostic or Doppler ultrasound, bone density, etc.) in your office	80%	12%	5%	3%	1%
Order a nerve conduction velocity (NCV) and/or needle electromyography (EMG) study	56%	23%	17%	3%	0%

Note. Due to rounding error numbers may not add to 100%.

6.1 Patient Assessment

Patient assessment encompasses the systematic evaluation of a patient's conditions, needs, capabilities, and preferences. Assessment is designed to identify the underlying causes of symptoms through a structured and methodical approach, ensuring accurate diagnosis and effective care planning (Souza, 2016). This process often involves a combination of history taking, physical examination, and the application of clinical reasoning to uncover factors contributing to a patient's health concerns (Bickley, 2012). Assessment not only aids in diagnosing current health issues but also facilitates the identification of potential risk factors and co-occurring conditions, empowering healthcare professionals to design preventive and personalized treatment strategies.

Chiropractors utilize a combination of patient assessment techniques, including patient interviews, physical examinations, and diagnostic assessments to evaluate spine and joint health, muscle function, biomechanical integrity, and overall health (Himelfarb et al., 2020). Evaluation and management procedures employed by chiropractors are comparable to those utilized by providers in other healthcare professions. However, chiropractic physical examinations often place an emphasis on the assessment of spinal and neuromusculoskeletal health. This specialized focus reflects the centrality of the spine and neuromusculoskeletal system in chiropractic practice (Dagenais & Haldeman, 2011).

In this study, the average estimate of patient assessment frequency was 2.9 (SD 1.1), while risk averaged at 2.1 (SD 0.2). The average for importance was 6.0 (SD 2.0). The reliability estimates were .89 for the patient assessment frequency and .95 for risk.

Tables 6.1 and 6.2 provide an overview of various tasks performed by chiropractors, including their frequency, associated risk levels, and importance ratings. Tasks such as "problem-focused case history" and "cervical, thoracic, lumbopelvic, and/or extremity palpatory evaluation" are among the most frequently performed procedures, with high importance ratings of 7.97 and 9.46, respectively, yet relatively low levels of associated risk (1.76 and 1.98, respectively). Similarly, tasks such as "spinal examination/analysis" and "comprehensive orthopedic/neurological examination" also have high

importance ratings (8.34 and 6.39, respectively) and are performed frequently.

Tasks such as ordering laboratory tests from external facilities, drawing blood, or ordering diagnostic imaging studies, occur less frequently but remain significant in relevant contexts. Some of these tasks are found within the scope of practice in some states and not in others, hence the possible reason for a lower frequency (Chang, 2014). These tasks typically have moderate importance ratings (e.g., 6.75 for evaluating imaging studies) and are associated with higher perceived risks, such as drawing blood (2.38) or ordering laboratory tests from outside facilities (2.44). While less commonly used, these procedures are still critical for managing complex cases requiring detailed diagnostics.

6.2 Case Management

Chiropractic case management includes the assessment, planning, coordination, and monitoring of individualized treatment protocols for patients (LeFebvre, Peterson, & Haas, 2013). Effective case management begins with a comprehensive evaluation of the patient's history, symptoms, and physical findings, followed by the development of a personalized care plan that aligns with evidence-based guidelines and patient goals (Stokes et al., 2015). Chiropractors employ a range of procedures, including spinal manipulation/adjustments, other manual therapies, exercise, and patient education. The aim is typically to address a patient's health concern or need, which may include pain, restoration of function, and improvement in the quality of life (Himelfarb et al., 2020). Central to case management is the ongoing monitoring of patient progress and the ability to adapt treatment strategies based on clinical outcomes and feedback, ensuring that care remains dynamic and responsive to the patient's evolving needs.

When indicated, chiropractic case management includes interprofessional collaboration, which occurs when two or more professionals work together to achieve common goals (Green & Johnson, 2015). Interprofessional collaboration is often used as a means for solving a variety of problems and complex issues, such as cases involving complex or coexisting conditions (Konrad, Fletcher, & Casey, 2004). Chiropractors coordinate with a variety of healthcare providers, such as medical physicians, orthopedic surgeons, physical therapists, and other health professionals to meet the needs of the patient (Haldeman, Chapman-Smith, & Petersen, 2005; Myburgh et al., 2022). This approach facilitates the integration of chiropractic care into broader healthcare systems, promoting continuity of care and improving patient outcomes (Goertz et al., 2017). Documentation plays a critical role in case management, as detailed records of diagnoses, treatment plans, and patient responses are essential for both clinical decision-making and legal compliance (Sportelli & Tarola, 2005).

The average estimates of case management frequency, risk, and associated importance were 3.62 (SD 0.7), 2.9 (SD 0.4), and 10.5 (SD 3.0), respectively. The corresponding reliability for case management yielded alpha values of .86 for frequency, and .93 for risk.

Among the tasks, "assess risk factors and contraindications to chiropractic care" was ranked as the most important (16.59). Similarly, "review radiographic images to identify or rule out fracture, dislocation, and other pathology" holds a high importance score (14.05). Tasks such as "develop a differential diagnosis or clinical impression" (14.43) and "review MRI, CT, or bone scan images to identify traumatic injuries or other pathology" (12.07) also score highly.

In addition to diagnostic tasks, the data highlight case management and collaborative responsibilities, such as "develop a case management plan" (11.61) and "refer a patient to a specialist for consultation or co-management" (9.53). Activities like "perform patient re-examinations" (11.88) and "release a patient from active care" (8.10) reflect the importance of ongoing assessment and decision-making in managing the course of treatment.

Table 6.3 Case management: Averages of frequency, risk, and importance

Task	Frequency	Risk	Importance
Assess risk factors and contraindications to chiropractic care	4.70	3.53	16.59
Develop a differential diagnosis or clinical impression	4.61	3.13	14.43
Review radiographic images to identify or rule out fracture, dislocation, and other pathology	3.87	3.63	14.05
Form a prognosis	4.56	2.69	12.27
Review MRI, CT, or bone scan images to identify or rule out traumatic injuries and/or other pathology	3.40	3.55	12.07
Perform patient re-examinations, either periodically or when the patient's condition changed	4.07	2.92	11.88
Develop a case management plan	4.43	2.62	11.61
Refer a patient to a specialist for consultation or co-management	3.39	2.81	9.53
Review radiographic images to determine the possible presence of a spinal listing and/or subluxation	3.39	2.67	9.05
Collaborate with other professionals and/or participate as a member of an interdisciplinary team	3.33	2.63	8.76
Review laboratory studies and interpret the results	2.74	3.00	8.22
Release a patient from active care	3.57	2.27	8.10
Search online databases to assist in patient management	3.33	2.37	7.89
Obtain repeat/follow-up radiographic examinations to monitor a patient's progress or response to care	2.67	2.56	6.84
Review specialized studies such as NCV, EMG, ECG, etc. and interpret the results	2.24	2.88	6.45

Tasks such as "review laboratory studies and interpret the results" (8.22) and "search online databases to assist in patient management" (7.89) are performed less frequently but remain essential for evidence-based decision-making and care optimization. The full results are presented in Table 6.3 and Table 6.4.

6.3 Communication

The delivery of high-quality patient care relies on healthcare providers having access to accurate and comprehensive information during the provision of care. This enables practitioners to make informed, timely decisions, tailor interventions to individual patient needs, and ensure the continuity of care across multiple interactions (Bates et al., 2003). Effective patient care is predicated on a systematic understanding of a patient's medical history, current health status, and treatment objectives. To achieve this, practitioners in all healthcare disciplines are required to maintain thorough and organized patient records. These records serve as a cornerstone for

Table 6.4 Case management: Frequency

Task	Never	Yearly	Monthly	Weekly	Daily
Assess risk factors and contraindications to chiropractic care	2%	2%	3%	11%	82%
Develop a differential diagnosis or clinical impression	2%	1%	7%	14%	76%
Form a prognosis	3%	1%	5%	21%	71%
Develop a case management plan	3%	3%	7%	23%	64%
Perform patient re-examinations, either periodically or when the patient's condition changed	2%	4%	23%	28%	43%
Review radiographic images to identify or rule out fracture, dislocation, and other pathology	6%	9%	17%	26%	41%
Review radiographic images to determine the possible presence of a spinal listing and/or subluxation	22%	8%	16%	19%	35%
Release a patient from active care	7%	8%	30%	30%	25%
Collaborate with other professionals and/or participate as a member of an interdisciplinary team	11%	12%	30%	25%	21%
Review MRI, CT, or bone scan images to identify or rule out traumatic injuries and/or other pathology	10%	10%	30%	31%	19%
Search online databases to assist in patient management	12%	12%	23%	36%	17%
Refer a patient to a specialist for consultation or co-management	2%	12%	45%	28%	13%
Obtain repeat/follow-up radiographic examinations to monitor a patient's progress or response to care	25%	23%	26%	13%	13%
Review laboratory studies and interpret the results	22%	23%	25%	21%	10%
Review specialized studies such as NCV, EMG, ECG, etc. and interpret the results	33%	30%	23%	10%	4%

Note. Due to rounding error numbers may not add to 100%.

communication among healthcare teams, ensuring that all involved providers operate with the same foundational knowledge about the patient. Moreover, they provide a legal and regulatory framework for documenting services rendered and justifying clinical decisions.

Table 6.5 Communication tasks: Averages of frequency, risk, and importance

Task	Frequency	Risk	Importance
Completely and legibly document each patient visit in the SOAP note (or similar) format	4.70	3.00	14.10
Create complete documentation of a patient's case history and examination findings, the diagnosis and prognosis, and the case management plan	4.37	3.06	13.37
Obtain written, informed consent for treatment	4.36	3.06	13.34
Review with a patient relevant case history and examination findings, diagnosis, prognosis, and case management options in a report of findings	4.35	3.06	13.31
Completely and legibly document, on each visit, the patient's presentation in the PART format (pain/tenderness, asymmetry, range of motion, and tissue tone) as required for Medicare reimbursement	4.32	2.83	12.23
Write a physical restriction/activity modification order	3.36	2.84	9.54
Write a narrative report (not daily notes)	2.71	2.15	5.83

Patient records typically include personal demographic information, insurance and billing details, and legal consent forms. In addition to administrative data, these records document clinical information, including case history, findings from physical examinations, imaging results, laboratory data, and diagnostic conclusions. They also contain dynamic data, such as ongoing progress notes and updates on the patient's response to interventions, providing a work chart for healthcare providers to assess trends over time. Furthermore, patient records include detailed descriptions of services rendered and individualized treatment plans that reflect the patient's unique needs and preferences (Sportelli & Tarola, 2005; Reimer, Milinovich, & Madigan, 2016). These records also facilitate effective collaboration between multidisciplinary teams, allowing for seamless integration of care across specialties.

Beyond their clinical utility, well-maintained patient records play a crucial role in ensuring legal and ethical compliance, particularly in an era of increasing scrutiny over healthcare practices. Poor documentation has been linked to medical errors and adverse outcomes, emphasizing the importance of precise and detailed record-keeping in reducing risks and promoting patient safety (Weiner et al., 2012). Additionally, patient records support research and quality improvement initiatives by providing valuable data on trends, outcomes, and treatment efficacy (El-Kareh et al., 2013). As healthcare increasingly incorporates digital solutions, electronic health records (EHRs) have become central to modern patient care. EHRs enhance accessibility, enable data sharing across providers, and improve overall efficiency, although they also introduce challenges related to data security and system interoperability (Beck et al., 2002; Si et al., 2021).

The average estimate of frequency for communication tasks was 4.1 (SD 0.6) and 2.8 (SD 0.2) for risk. The average importance was 11.6 (SD 2.1). The reliability estimates were .87 for communication tasks frequency and .95 for risk.

Table 6.6 Communication tasks: Frequency

Task	Never	Yearly	Monthly	Weekly	Daily
Completely and legibly document each patient visit in the SOAP note (or similar) format	0%	1%	3%	5%	91%
Completely and legibly document, on each visit, the patient's presentation in the PART format (pain/tenderness, asymmetry, range of motion, and tissue tone) as required for Medicare reimbursement	8%	1%	7%	7%	77%
Obtain written, informed consent for treatment	5%	5%	9%	11%	70%
Create complete documentation of a patient's case history and examination findings, the diagnosis and prognosis, and the case management plan	1%	4%	11%	21%	63%
Review with a patient relevant case history and examination findings, diagnosis, prognosis, and case management options in a report of findings	2%	3%	11%	25%	59%
Write a physical restriction/activity modification order	5%	11%	38%	34%	12%
Write a narrative report (not daily notes)	18%	24%	35%	16%	7%

Note. Due to rounding error numbers may not add to 100%.

The highest-rated task in terms of importance is "completely and legibly document each patient visit in the SOAP note (or similar) format," with a rating of 14.10. Tasks such as "review with a patient relevant case history and examination findings, diagnosis, prognosis, and case management" (13.31) and "create complete documentation of a patient's case history and examination findings, the diagnosis, and prognosis" (13.37) were also highly emphasized. These tasks carry moderate levels of associated risk (around 3.00), reflecting their significance in clinical decision-making and patient outcomes.

Detailed communication tasks results are presented in Table 6.5 and Table 6.6.

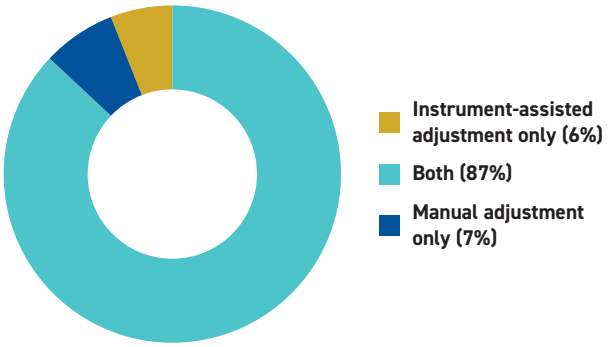

Figure 6.1. Prevalence of adjustment types across sample.

6.4 Treatment

Chiropractic adjustments/manipulation remain the cornerstone of chiropractic care, serving

Table 6.7 Treatment tasks: Averages of frequency, risk, and importance, chiropractic adjustment

Task	Frequency	Risk	Importance
A manual chiropractic adjustment on the cervical spine	4.75	3.34	15.87
A manual chiropractic adjustment on the lumbar spine/ pelvis	4.74	3.26	15.45
A manual chiropractic adjustment on the thoracic spine	4.77	3.10	14.79
A manual chiropractic adjustment of an extra-spinal articulation	4.53	2.82	12.77
An instrument-assisted chiropractic adjustment (e.g. Activator, drop-section, flexion-distraction, etc.) of the occiput, spine, and/or pelvis	4.43	2.63	11.65
An objective assessment of the involved joints' function immediately following your chiropractic adjustment	4.61	2.41	11.11
An instrument-assisted chiropractic adjustment (e.g. Activator, etc.) chiropractic adjustment of an extra-spinal articulation	3.91	2.44	9.54

Table 6.8 Treatment tasks: Averages of frequency, risk, and importance, other chiropractic procedures

Task	Frequency	Risk	Importance
Use myofascial/soft tissue release techniques	3.92	2.55	10.00
Use an un-attended physiotherapeutic modality (e.g. motorized traction, vibration, diathermy, heat/cold packs, etc.)	3.52	2.81	9.89
Use an attended physiotherapeutic modality (e.g. cold laser, ultrasound, etc.)	3.46	2.79	9.65
Use in-office active rehab exercises	3.50	2.53	8.86
Supply nutritional supplements, herbs, enzymes, or homeopathic remedies as an adjunctive treatment	3.08	2.61	8.04
Use orthotics, bracing, and/or taping as an adjunctive treatment	3.03	2.44	7.39

as a primary treatment procedure employed by Doctors of Chiropractic. Chiropractors have developed a variety of specialized manipulative techniques tailored to address specific conditions and patient needs, many of which are unique to the profession (Dubuc et al., 2022; Lombardi, 2000). These techniques often target the spine (Bergmann & Peterson, 2011). Research supports the efficacy of spinal manipulation in alleviating a range of neuromusculoskeletal issues, from chronic lower back pain to tension headaches, underscoring its role as a key therapeutic tool in conservative care (Coulter et al., 2018; Gorrell et al., 2016; Haas et al., 2018; Paige et al., 2017; Trager et al., 2024; Pickar, 2002; Henderson, 2012; Bryans et al., 2014; Haas, Sharma, &

Table 6.9 Treatment tasks: Averages of frequency, risk, and importance, target population

Task	Frequency	Risk	Importance
Treat patients older than 65	4.48	3.08	13.80
Treat children, infants, or adolescents	4.01	2.91	11.67
Treat athletes, or sport teams	4.09	2.83	11.57
Treat veterans or active-duty military	3.80	2.82	10.72
Treat underserved or special populations	3.19	2.79	8.90
Treat animals	1.04	2.60	2.70

Table 6.10 Treatment tasks: Averages of frequency, risk, and importance, acupuncture and dry needling

Task	Frequency	Risk	Importance
Use acupuncture (with needles)	3.15	2.61	8.22
Use dry needling	2.71	2.73	7.40

Table 6.11 Treatment tasks: Frequency, chiropractic adjustment

Task	Never	Yearly	Monthly	Weekly	Daily
A manual chiropractic adjustment on the thoracic spine	1%	1%	0%	6%	92%
A manual chiropractic adjustment on the lumbar spine/pelvis	1%	1%	0%	6%	91%
A manual chiropractic adjustment on the cervical spine	2%	1%	1%	6%	91%
A manual chiropractic adjustment of an extra-spinal articulation	1%	2%	4%	19%	74%
An objective assessment of the involved joints' function immediately following your chiropractic adjustment?	4%	0%	5%	17%	74%
An instrument-assisted chiropractic adjustment (e.g. Activator, drop-section, flexion-distraction, etc.) of the occiput, spine, and/or pelvis	6%	4%	7%	14%	70%
An instrument-assisted chiropractic adjustment (e.g. Activator, etc.) of an extra-spinal articulation?	15%	6%	7%	19%	54%

Note. Due to rounding error numbers may not add to 100%.

Table 6.12 Treatment tasks: Frequency, other chiropractic procedures

Task	Never	Yearly	Monthly	Weekly	Daily
An objective assessment of the involved joints' function immediately following your chiropractic adjustment?	2%	0%	3%	18%	77%
Use myofascial/soft tissue release techniques	17%	4%	8%	15%	57%
Use an un-attended physiotherapeutic modality (e.g. motorized traction, vibration, diathermy, heat/cold packs, etc.)	28%	4%	5%	13%	50%
Use an attended physiotherapeutic modality (e.g. cold laser, ultrasound, etc.)	28%	5%	5%	16%	46%
Supply nutritional supplements, herbs, enzymes, or homeopathic remedies as an adjunctive treatment	27%	9%	17%	22%	25%
Use orthotics, bracing, and/or taping as an adjunctive treatment	20%	11%	29%	25%	15%

Note. Due to rounding error numbers may not add to 100%.

Table 6.13 Treatment tasks: Frequency, target population

Task	Never	Yearly	Monthly	Weekly	Daily
Treat patients older than 65	3%	4%	7%	15%	71%
Treat athletes, or sport teams	6%	3%	16%	27%	49%
Treat children, infants, or adolescents	4%	11%	11%	28%	46%
Treat veterans or active-duty military	7%	7%	20%	29%	37%
Treat underserved or special populations	17%	17%	20%	24%	22%
Treat animals	81%	13%	3%	2%	1%

Note. Due to rounding error numbers may not add to 100%.

Table 6.14 Treatment tasks: Frequency, chiropractic acupuncture and dry needling

Task	Never	Yearly	Monthly	Weekly	Daily
Use acupuncture (with needles)	82%	3%	1%	5%	9%
Use dry needling	80%	3%	3%	9%	5%

Note. Due to rounding error numbers may not add to 100%.

Table 6.15 Active care and Education tasks: Averages of frequency, risk, and importance

Task	Frequency	Risk	Importance
Make specific recommendations to a patient regarding activities of daily living	4.61	2.75	12.68
Make specific recommendations to a patient regarding physical fitness and exercise	4.49	2.78	12.48
Make specific recommendations to a patient regarding changing risky or unhealthy behaviors	4.27	2.84	12.13
Make specific recommendations to a patient regarding ergonomic or postural advice	4.45	2.68	11.93
Make specific recommendations to a patient regarding relaxation or stress reduction	4.35	2.63	11.44
Make specific recommendations to a patient regarding nutritional and dietary behaviors	4.15	2.73	11.33
Make specific recommendations to a patient concerning disease prevention/screening	3.75	2.86	10.73
Make specific recommendations to a patient regarding smoking cessation	3.27	2.77	9.06

Stano, 2005; Walker, 2016; Goertz et al., 2013; Holt et al., 2016; Globe et al., 2016; Goertz et al., 2018).

In addition to spinal manipulation, chiropractic care encompasses a broad scope of interventions aimed at promoting health (Hawk et al., 2021; Johnson & Green, 2009). Many chiropractors integrate modalities such as therapeutic ultrasound, electrical stimulation, and soft tissue methods to complement manipulation and enhance patient outcomes (Himelfarb, Hyland & Ouzts, 2020). Additionally, chiropractors emphasize the importance of lifestyle factors, advocating for proper nutrition, regular exercise, and a positive mental outlook as integral components of overall health (Haldeman, 2005). By combining various treatment procedures with lifestyle interventions, chiropractors provide comprehensive care designed to optimize physical and mental well-being.

Among the tasks most frequently performed by chiropractors are manual chiropractic adjustments of the cervical, thoracic, and lumbar spine, with importance scores of 15.87, 14.79, and 15.45, respectively. Similarly, instrument-assisted chiropractic adjustments, such as those using adjusting instruments or chiropractic tables that facilitate adjustments, score high in importance (11.65) and are used frequently. In 2024, the majority of chiropractors (87%) reported utilizing both manual adjustment and instrument-assisted adjustment in their practice. A smaller proportion (7%) exclusively use manual adjustments, and another group (6%) report solely using instrument-assisted adjustments.

Patients over the age of 65 emerged as the most significant population of treatment, with the highest importance rating (13.80) and a frequency score of 4.48. Similarly, treating children, infants, and adolescents (11.67) and working with athletes or sports teams (11.57) rank high in importance, with relatively high frequency scores of 4.01 and 4.09, respectively. Providing care for veterans and active-duty military personnel was reported less frequently but rated as important (10.72). Utilizing myofascial or soft tissue release techniques (10.00)

Table 6.16 Active care and Education tasks: Frequency

Task	Never	Yearly	Monthly	Weekly	Daily
Make specific recommendations to a patient regarding activities of daily living	1%	1%	7%	19%	72%
Make specific recommendations to a patient regarding ergonomic or postural advice	0%	4%	9%	22%	65%
Make specific recommendations to a patient regarding physical fitness and exercise	1%	1%	8%	28%	62%
Make specific recommendations to a patient regarding relaxation or stress reduction	0%	2%	14%	29%	55%
Make specific recommendations to a patient regarding changing risky or unhealthy behaviors	1%	4%	15%	25%	55%
Make specific recommendations to a patient regarding nutritional and dietary behaviors	4%	4%	14%	28%	50%
Make specific recommendations to a patient concerning disease prevention/ screening	7%	7%	24%	28%	34%
Make specific recommendations to a patient regarding smoking cessation	13%	13%	31%	19%	24%

Note. Due to rounding error numbers may not add to 100%.

are also important tasks within chiropractic practice. Specialized tasks, such as using orthotics and bracing (7.39) or treating animals (2.70), may be influenced by variance in scopes of practice by state.

Eighteen states allow chiropractors to use acupuncture if they have a separate license: Alaska, California, Georgia, Hawaii, Kentucky, Louisiana, Michigan, Mississippi, Montana, New Jersey, New York, Nevada, Oregon, Pennsylvania, Rhode Island, South Carolina, Washington, and Wisconsin. Therefore, data from these states were excluded from the analyses when detailing chiropractic acupuncture frequencies and risk associated with it. Among chiropractors residing in states where acupuncture is permitted under a chiropractic license, the use of acupuncture with needles is practiced with a frequency score of 3.15 and an importance rating of 8.22. The associated risk is moderate at 2.61. When dry needling is reported (2.71), there is a slightly higher perceived risk (2.73) and a lower importance rating (7.40).

Additionally, tasks focused on making specific recommendations to patients, such as "regarding

physical fitness and exercise" (12.48) and "regarding activities of daily living" (12.68), were performed frequently and rated high in importance. Other notable tasks include providing ergonomic or postural advice (11.93) and guidance on disease prevention or smoking cessation.

Detailed results are presented in Tables 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14, 6.15, and 6.16.

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Chapter Seven
Patient Conditions

7.1 Introduction

This chapter explores the types of conditions that are identified in chiropractic practices. Chiropractors in the U.S. play an important role in the management of a wide range of neuromusculoskeletal and other conditions (McDonald, Durkin, & Pfefer, 2004; Chang, 2014; Christensen et al., 2015). Over 35 million Americans, including adults and children, see a chiropractor at least once a year (ACA, 2023). Among the most commonly treated health issues are headache, neck pain, lower back pain and sciatica, which account for a significant portion of chiropractic visits (Himelfarb et al., 2020). Furthermore, many patients choose chiropractic care due to its emphasis on holistic and drug-free treatment approaches (Johnson & Green, 2017). Chiropractors also provide ergonomic advice and postural corrections, which help to prevent recurrent episodes of neck pain and improve the patient's overall quality of life (Daly, 2015).

According to a Gallup report on chiropractic, 53% of Americans with neck or back pain preferred care from chiropractors over other healthcare providers, highlighting a strong trust in chiropractic care for these spine-related conditions

(Gallup, 2018). Furthermore, 31% of U.S. adults experiencing significant neck or back pain considered chiropractic care safer than prescription pain medication, compared to only 17% who believed the opposite (Gallup, 2018, p. 9).

Many chiropractors address extremity conditions, such as shoulder pain, carpal tunnel syndrome, and plantar fasciitis. Chiropractors provide care for a variety of chronic conditions for which a cure is not expected, but improvements or maintenance of quality of life may be afforded. Some of these conditions include myofascial pain, spinal stenosis, headaches, and osteoarthritis. Patients may benefit from gentle manipulation, mobilization, lifestyle counseling, nutritional advice, and physical therapies to manage symptoms and improve function and overall well-being.

7.2 Conditions

The respondents were asked to report which of the 93 distinct health conditions or presentations were identified in their clinical practice. Participants were prompted to respond to the following question*: "Indicate how often you identify or are aware of patients with the following conditions in your practice."* To collect the responses, a 5-point frequency scale was utilized, ranging from *Never* to *Yearly, Monthly, Weekly,* and *Daily.* This question sought to measure what types of conditions patients may present with, even if the chiropractor may not be managing the condition.

There are health concerns that may be presented concurrently with the condition that a chiropractor is managing. For example, a patient may be under medical care for cancer and is also being seen by a chiropractor for back pain and improving activities of daily living. Or there may be a communicable or non-communicable disease that the chiropractor identifies and then refers to another healthcare provider. Identifying health conditions helps to raise awareness that chiropractors interact with patients who have complex health needs. Therefore, this question helped to identify what types of complex health issues or comorbidities may present to a chiropractor.

Respondents were asked to indicate how they manage each of the 93 conditions or presentations 50% or more of the time, selecting from three specific categories: *Treated, Co-managed,* and *Not treated/Referred out*. These categories allow for a detailed analysis of conditions that are managed independently versus those in which there is collaborative care or management by other healthcare professionals.

7.3 Frequency of Encounter

7.3.1 Neuromusculoskeletal Conditions

Musculoskeletal problems are the leading conditions seen on a daily basis in chiropractic practice. Subluxation/joint dysfunction, acute and chronic neck pain, and acute and chronic low back pain are seen daily by 86%, 81%, 78%, 77%, and 75% of respondents, respectively. High daily prevalence also includes osteoarthritis or degenerative joint disease (72%), muscle strains and myofascial pain (70% and 68%), sacroiliac or pelvic pain (65%), and thoracic pain (60%). Other musculoskeletal conditions commonly seen in daily practice include extremity subluxation/joint dysfunction, postural syndrome, and sacral or coccyx pain. Conditions that are rarer, such as bone tumors or metastasis and avascular necrosis, are seen less frequently, with most respondents reporting yearly.

Chiropractors frequently encounter patients with neurological conditions such as headaches, which are seen daily by 66% of respondents. Radiculopathy also shows a high daily presence (55%). More rare conditions, such as multiple sclerosis or parkinsonism are encountered much less frequently in chiropractic offices, with 40% reporting yearly encounters. Vertigo or loss of equilibrium and thoracic outlet syndrome are encountered weekly to monthly in 34% and 23% of cases.

Table 7.1 Conditions chiropractors identify or are aware of in patients in their practice

Condition	Never	Yearly	Monthly	Weekly	Daily
Spinal subluxation/joint dysfunction	2%	2%	4%	7%	86%
Neck pain (less than 6 weeks in duration)	0%	5%	2%	12%	81%
Neck pain (more than 6 weeks in duration)	0%	4%	5%	12%	78%
Low back pain (less than 6 weeks in duration)	0%	5%	3%	15%	77%
Low back pain (more than 6 weeks in duration)	0%	3%	5%	17%	75%
Osteoarthritis or degenerative joint disease	1%	3%	6%	17%	72%
Muscle strain	1%	5%	6%	19%	70%
Myofascial pain	2%	4%	4%	22%	68%
Headaches	1%	1%	5%	27%	66%
Sacroiliac or pelvic pain	1%	5%	8%	23%	65%
Thoracic pain, non-specific mechanical	2%	4%	11%	23%	60%
Hyper/hypolordosis of cervical or lumbar spine	3%	4%	9%	25%	59%
Intervertebral disc disease/syndrome	1%	5%	13%	22%	59%
Sprain of any joint	1%	5%	10%	28%	57%
Radiculitis or radiculopathy	1%	3%	11%	30%	55%
Stress or anxiety	3%	2%	10%	30%	55%
Extremity subluxation/joint dysfunction	2%	5%	10%	31%	52%
Postural syndrome	3%	7%	9%	32%	50%
Sacral or coccyx pain	1%	8%	18%	23%	50%
Obesity or overweight	6%	8%	15%	25%	46%
Hyperkyphosis	4%	6%	18%	30%	42%
Muscle weakness or atrophy	2%	13%	21%	25%	39%
Scoliosis	1%	9%	23%	31%	35%
Tendinopathy	7%	7%	26%	26%	35%
Whiplash, whiplash associated disorder	4%	8%	23%	32%	33%
Spinal stenosis/neurogenic claudication	3%	15%	25%	31%	27%
Diabetes/metabolic syndrome	11%	13%	27%	23%	27%
Osteoporosis or osteomalacia	6%	18%	21%	31%	25%
Allergies, food or environmental	8%	11%	29%	30%	23%
Peripheral neuritis, neuralgia, or neuropathy	7%	9%	26%	39%	20%
TMJ syndrome	2%	14%	29%	36%	19%
Food/environmental allergies	10%	14%	27%	29%	19%

Table 7.1 continued

Condition	Never	Yearly	Monthly	Weekly	Daily
Bursitis or synovitis	8%	8%	28%	40%	17%
Nutritional deficiency or disorder	14%	22%	26%	21%	17%
Carpal or tarsal tunnel syndrome	1%	14%	34%	35%	15%
Thoracic outlet syndrome	5%	22%	34%	23%	15%
Fibromyalgia	10%	15%	31%	30%	14%
Immune system dysfunction	11%	24%	31%	21%	14%
Sinus condition	13%	15%	31%	29%	13%
Gastrointestinal diseases or disorders	14%	21%	35%	18%	13%
Pregnancy-related condition	10%	22%	32%	25%	12%
Mental health/psychological disorders	20%	24%	20%	24%	12%
Rheumatoid/inflammatory arthritis or gout	6%	20%	37%	27%	11%
Sleep disorder	15%	15%	32%	27%	11%
Vertigo/loss of equilibrium	3%	16%	37%	34%	10%
Menopause	16%	23%	29%	22%	10%
Torticollis	7%	39%	23%	21%	10%
Asthma, emphysema, or COPD	14%	28%	32%	17%	9%
Concussion/head injury	5%	24%	36%	27%	7%
Cancer (prostate, breast, lung, skin, or other)	17%	47%	22%	7%	7%
Childhood respiratory/ear infection	19%	33%	27%	15%	6%
Cranial nerve disorder	18%	44%	20%	13%	6%
Eye, ear, nose, or throat disorder	16%	29%	27%	24%	5%
ALS, multiple sclerosis, or parkinsonism	16%	40%	23%	16%	5%
Skin disorders, acne, dermatitis, or psoriasis	25%	28%	26%	15%	5%
Congenital/developmental anomaly	24%	31%	25%	15%	5%
Anemia	21%	32%	28%	14%	5%
Colic (infants)	33%	28%	22%	12%	5%
Adrenal disorder	25%	38%	21%	11%	5%
Hiatal hernia/esophageal reflux	17%	32%	27%	20%	4%
Thyroid disorder	16%	30%	31%	18%	4%
Menstrual disorder	24%	18%	36%	17%	4%
Peripheral artery or vein disorder	27%	28%	29%	12%	4%
Stroke or cerebrovascular condition	23%	41%	26%	7%	4%
Respiratory diseases or disorders	26%	29%	30%	12%	3%

Table 7.1 continued

Condition	Never	Yearly	Monthly	Weekly	Daily
Colitis or diverticulitis	29%	30%	26%	12%	3%
Fracture (compression or other)	12%	44%	32%	9%	3%
Angina or myocardial infarction	35%	36%	18%	9%	3%
Benign prostatic hypertrophy	34%	34%	21%	7%	3%
Infertility female/male	38%	35%	16%	7%	3%
Dislocation of any joint	25%	51%	16%	5%	3%
Eating disorder	28%	38%	19%	13%	2%
Heart murmur or rhythm irregularity	24%	38%	26%	10%	2%
Kidney or urinary tract infection	25%	39%	30%	4%	2%
Abdominal aortic aneurysm	32%	56%	6%	4%	2%
Bone tumor/metastasis	37%	51%	8%	2%	2%
Atelectasis or pneumothorax	68%	28%	1%	2%	2%
Appendicitis	50%	45%	4%	0%	2%
Urinary, stress or urge incontinence	26%	37%	27%	9%	1%
Ulcer of stomach, small intestine, or colon	31%	42%	20%	5%	1%
Skin cancer	35%	34%	27%	4%	1%
Hemorrhoid	43%	36%	16%	4%	1%
Infection of joint/disc/bone	37%	46%	13%	4%	1%
Kidney stones	21%	50%	25%	3%	1%
Occupational or environmental lung disorder	48%	34%	13%	3%	1%
Herpes simplex or herpes zoster	40%	45%	11%	3%	1%
Avascular necrosis	47%	47%	3%	3%	1%
Fibrocystic breast or polycystic ovary	39%	34%	19%	8%	0%
Cholecystitis or pancreatitis	44%	38%	12%	5%	0%
Inguinal hernia	28%	52%	18%	2%	0%
Lung or respiratory tumor	55%	37%	5%	2%	0%
Sexually transmitted disease	66%	28%	5%	1%	0%
Kidney or bladder tumor	58%	36%	6%	0%	0%

Note 1. The term "subluxation" is used here within the context of the chiropractic lexicon and paradigm, such as, a joint dysfunction that can be addressed through chiropractic adjustment/manipulation. The term "subluxation" used here does not imply the medical definition, which means partial dislocation.

Note 2. Due to rounding error numbers may not add to 100%.

Table 7.2 Management of each condition 50% or more of the time

Condition	Treated	Co-managed	Not treated/ Referred out
Muscle strain	93%	6%	2%
Low back pain (less than 6 weeks in duration)	93%	5%	2%
Neck pain (less than 6 weeks in duration)	92%	7%	1%
Spinal subluxation/joint dysfunction	91%	7%	2%
Sacroiliac or pelvic pain	90%	9%	1%
Thoracic pain, non-specific mechanical	88%	10%	2%
Myofascial pain	87%	12%	1%
Hyper/hypolordosis of cervical or lumbar spine	87%	8%	5%
Neck pain (more than 6 weeks in duration)	86%	13%	1%
Extremity subluxation/joint dysfunction	86%	12%	3%
Sacral or coccyx pain	84%	14%	2%
Hyperkyphosis	83%	13%	5%
Low back pain (more than 6 weeks in duration)	82%	16%	2%
Sprain of any joint	81%	17%	2%
Postural syndrome	79%	16%	5%
Whiplash, whiplash associated disorder	77%	21%	3%
Headaches	74%	24%	2%
Torticollis	74%	21%	5%
Intervertebral disc disease/syndrome	73%	24%	3%
Radiculitis or radiculopathy	69%	28%	4%
Scoliosis	66%	32%	1%
Carpal or tarsal tunnel syndrome	64%	36%	1%
Osteoarthritis or degenerative joint disease	64%	33%	3%
Thoracic outlet syndrome	64%	30%	6%
Tendinopathy	58%	35%	7%
TMJ syndrome	55%	40%	5%
Bursitis or synovitis	55%	39%	7%
Muscle weakness or atrophy	46%	51%	3%
Vertigo/loss of equilibrium	44%	52%	4%
Fibromyalgia	42%	49%	9%
Colic (infants)	35%	32%	33%
Spinal stenosis/neurogenic claudication	30%	61%	10%

Table 7.2 continued

Condition	Treated	Co-managed	Not treated/ Referred out
Peripheral neuritis, neuralgia, or neuropathy	28%	59%	13%
Concussion/head injury	27%	65%	9%
Stress or anxiety	26%	61%	14%
Childhood respiratory/ear infection	25%	48%	28%
Nutritional deficiency or disorder	22%	52%	26%
Pregnancy-related condition	21%	60%	19%
Allergies, food or environmental	21%	41%	38%
Osteoporosis or osteomalacia	19%	63%	19%
Cranial nerve disorder	19%	59%	22%
Obesity or overweight	18%	59%	23%
Food/environmental allergies	16%	52%	32%
Sinus condition	16%	52%	32%
Congenital/developmental anomaly	15%	56%	29%
Dislocation of any joint	14%	45%	41%
Hiatal hernia/esophageal reflux	13%	44%	43%
Adrenal disorder	13%	25%	62%
Rheumatoid/inflammatory arthritis or gout	11%	66%	23%
Immune system dysfunction	11%	51%	39%
Eye, ear, nose, or throat disorder	11%	44%	45%
Sleep disorder	10%	55%	35%
Menopause	10%	50%	41%
Menstrual disorder	10%	47%	43%
Colitis or diverticulitis	10%	42%	48%
Diabetes/metabolic syndrome	9%	49%	42%
Infertility female/male	9%	33%	58%
Anemia	8%	34%	58%
Gastrointestinal diseases or disorders	7%	42%	51%
Urinary, stress or urge incontinence	7%	35%	58%
Skin disorders, acne, dermatitis, or psoriasis	7%	26%	67%
Thyroid disorder	6%	39%	56%
Hemorrhoid	6%	20%	74%
Eating disorder	5%	36%	59%

Table 7.2 continued

Condition	Treated	Co-managed	Not treated/ Referred out
Ulcer of stomach, small intestine, or colon	5%	35%	61%
Infection of joint/disc/bone	5%	20%	76%
ALS, multiple sclerosis, or parkinsonism	4%	55%	41%
Asthma, emphysema, or COPD	4%	55%	41%
Benign prostatic hypertrophy	4%	27%	69%
Kidney or urinary tract infection	4%	27%	68%
Cholecystitis or pancreatitis	4%	24%	72%
Herpes simplex or herpes zoster	4%	20%	76%
Respiratory diseases or disorders	3%	38%	59%
Heart murmur or rhythm irregularity	3%	29%	68%
Fibrocystic breast or polycystic ovary	3%	24%	73%
Fracture (compression or other)	2%	32%	67%
Kidney stones	2%	23%	75%
Stroke or cerebrovascular condition	2%	22%	75%
Angina or myocardial infarction	2%	19%	79%
Inguinal hernia	2%	19%	79%
Mental health/psychological disorders	1%	46%	53%
Peripheral artery or vein disorder	1%	24%	75%
Avascular necrosis	1%	20%	79%
Occupational or environmental lung disorder	1%	20%	79%
Sexually transmitted disease	1%	8%	92%
Atelectasis or pneumothorax	1%	6%	92%
Cancer (prostate, breast, lung, skin, or other)	0%	26%	74%
Bone tumor/metastasis	0%	13%	87%
Lung or respiratory tumor	0%	13%	88%
Abdominal aortic aneurysm	0%	9%	91%
Skin cancer	0%	9%	91%
Kidney or bladder tumor	0%	8%	91%
Appendicitis	0%	7%	93%

Note 1. The term "subluxation" is used here within the context of the chiropractic lexicon and paradigm, such as, a joint dysfunction that can be addressed through chiropractic adjustment/manipulation. The term "subluxation" used here does not imply the medical definition, which means partial dislocation.

Note 2. Due to rounding error numbers may not add to 100%.

7.3.2 Cardiovascular and Respiratory Conditions

Angina or myocardial infarction and heart murmurs are encountered at least once a year by 36% and 38% of respondents, respectively, with daily cases being rare (3% or less). Similarly, peripheral artery or vein disorders are seen with a yearly prevalence reported by 28%. Respiratory conditions such as asthma, emphysema, or COPD are seen monthly to weekly in 32% and 17% of cases. Other conditions like abdominal aortic aneurysm and lung tumors are seen with a yearly prevalence of (56% and 37%).

7.3.3 Gastrointestinal and Endocrine Conditions

Gastrointestinal issues like ulcers, colitis, and diverticulitis are encountered yearly by 42% and 30% of respondents, respectively. Endocrine disorders such as adrenal conditions and thyroid disorders are more frequent, with monthly occurrences reported in 21% and 31% of cases. Diabetes/metabolic syndrome is encountered daily by 27% of respondents.

7.3.4 Miscellaneous Conditions

Conditions such as mental stress or anxiety are seen commonly, with 55% of respondents encountering them daily. Similarly, fibromyalgia is encountered weekly by 30% of respondents. Other conditions, such as sexually transmitted diseases and benign prostatic hypertrophy, are rarely encountered, with most respondents indicating yearly or never for these conditions.

Table 7.1 presents detailed results on the conditions encountered by chiropractors in their clinical practices.

7.4 Management

Table 7.2 provides an overview of how Doctors of Chiropractic manage various conditions at least 50% of the time, categorized into three approaches: treated directly, co-managed with other healthcare professionals, or referred out for treatment.

7.4.1 Conditions Commonly Managed

The top ten most commonly managed conditions include acute low back pain and muscle strain (93%), acute neck pain (92%), spinal subluxation/joint dysfunction (91%), sacroiliac or pelvic pain (90%), thoracic pain (88%), myofascial pain (87%), hyper/hypolordosis of cervical or lumbar spine (87%), chronic neck pain (86%), and extremity subluxation/joint dysfunction (86%). These are all mainly managed by the chiropractor, with few being co-managed with an additional healthcare provider and very few being referred to another provider.

7.4.2 Co-Managed Conditions

The top ten conditions that are most commonly co-managed with another provider are rheumatoid/inflammatory arthritis or gout (66%), concussion/head injury (65%), osteoporosis or osteomalacia (63%), spinal stenosis/neurogenic claudication (61%), stress or anxiety (61%), pregnancy-related condition (60%), peripheral neuritis, neuralgia, or neuropathy (59%), cranial nerve disorder (59%), obesity or overweight (59%), and congenital/developmental anomaly (56%). Co-management may include managing a patient concurrently with another provider for pain, wellness, or other reasons. The survey did not detail the type of care provided during co-management.

7.4.3 Conditions Referred to Other Providers

The top conditions that are most commonly referred to other healthcare providers 50% or more of the time included appendicitis (93%), sexually transmitted disease, atelectasis, pneumothorax (92%), abdominal aortic aneurysm, skin cancer, kidney or bladder tumor (91%), lung or respiratory tumor (88%), bone tumor/metastasis (87%), angina or myocardial infarction, inguinal hernia,

avascular necrosis, occupational or environmental lung disorder (79%).

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Chapter Eight

Scientific, Ethical, and Professional Practices

The Scientific and Ethical Practices domain asked questions that emphasized key aspects of professional activities and ethical standards related to evidence-informed practice, ethics, technology, collaboration, and use of technology. Several of these survey items were newly introduced to the survey because chiropractic evolves with changes in the larger healthcare landscape. A brief overview of the main topics queried is provided below.

Clinical practice requires the integration of best evidence, clinical experience, and patient values. By using scientific evidence, chiropractors align their practices with the latest advancements in healthcare knowledge (Walker, Stomski, Hebert, & French, 2014). At the same time, chiropractic clinicians must consider patients' values, preferences, and cultural beliefs in clinical decision-making, thereby making care person-centered (Haneline, 2007; Hawk et al., 2020). Equity is part of person-centered care, requiring practitioners to deliver fair treatment to all patients regardless of race, ethnicity, religion, ability, gender, or other individual traits (Johnson et al., 2025; Johnson & Green, 2012). The expertise of the clinician is a critical part of the patient care experience (Bosch et al., 2009). It allows practitioners to skillfully interpret and apply evidence while considering the individual needs and circumstances of their patients (Haynes, Devereaux, & Guyatt, 2002).

The primary ethos of all healthcare providers is to first do no harm. This ethic applies to patient care, communication, and respecting privacy and

confidentiality. This process extends to the use of technology, including digital communication, health records, and secure storage and transmission of health and financial data.

Finally, collaboration with healthcare providers from other professions, such as medical doctors, osteopathic physicians, physical therapists, and other providers, assists with delivering comprehensive and integrated patient care (Konrad, Fletcher, & Carey, 2004). Teamwork such as this may facilitate communication among healthcare providers, reduce fragmented care, help achieve optimal outcomes for patients, and foster a better understanding between disciplines (Green & Johnson, 2015; World Health Organization, 2010).

8.1 Evidence-Informed Practice

Routinely, defined as daily, weekly, or monthly, there were 100% of chiropractors who reported using clinical expertise and judgement when making decisions about patient care. There were 97% who reported routinely considering patients' values and including patients in decisions about their healthcare.

There were 94% of chiropractors who reported making decisions based on scientific evidence on a regular basis (daily 75%, weekly 13%, and monthly 6%). Specifically, the majority (89%) of chiropractors used best practice documents and professional guidelines routinely. Scientific resources such as journals and guidelines were used by 83% of respondents routinely to communicate with patients. Scientific resources are used less frequently when addressing compliance, regulations, or legal issues (61%). Scientific resources used for billing and reimbursement purposes are reported routinely by 56% of respondents. Details can be seen in Figure 8.1.

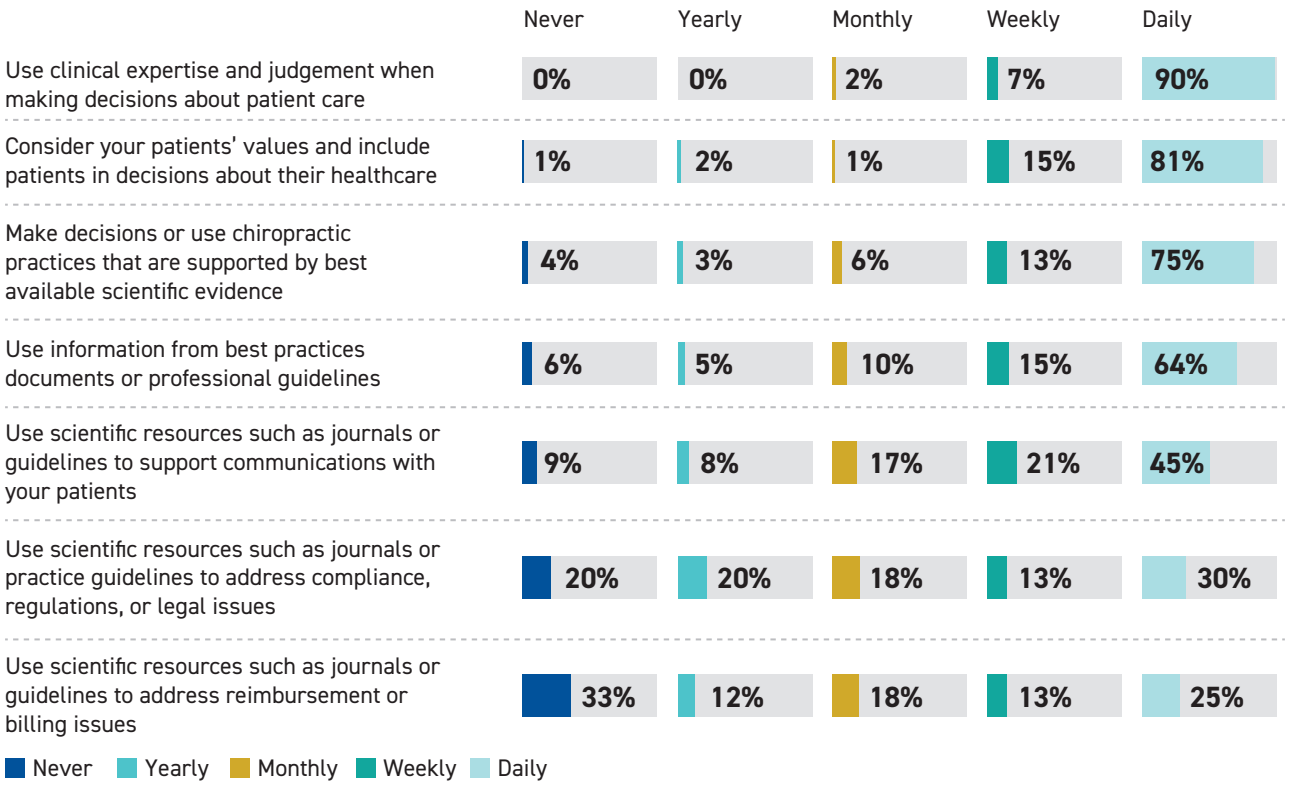

Figure 8.1. Frequency of engaging in evidence-based practices, clinical decision-making, patient-centered care, the use of scientific resources for communication and administrative tasks.

8.2 Ethics and Equity

A majority of chiropractors (96%) reported that they routinely include fair treatment of patients regardless of individual traits—such as race, ethnicity, religion, ability, disability, or gender. There were 96% of respondents who reported routinely making judgments to avoid harm to patients and ensuring that biological, psychological, and social aspects of care are considered.

The majority of chiropractors (91%) reported making practice decisions routinely to ensure patient health information is handled confidentially, underscoring the high priority given to data privacy and compliance with regulations. Typically, chiropractors and their staff participate in safety, risk reduction, and patient privacy training on an annual basis. The survey findings show that 98% of chiropractors reported that they and their staff participate in training about practice safety, risk reduction and patient privacy at least once per year.

The majority (96%) of chiropractors reported routine consideration of the best interests of patients within the context of their individual beliefs. Lastly, providing patients with choices regarding healthcare interventions and informing them about options and effects is practiced routinely by 95% of chiropractors. Details are presented in Figure 8.2.

8.3 Technology

As seen in Figure 8.3, electronic health records were widely used, with 71% of chiropractors utilizing them daily. The majority (72%) reported routinely using digital technology for electronic billing, electronic payment services, or digital communications tools at least weekly, indicating a high reliance on digital solutions for financial and administrative tasks. The use of telehealth services—including telephone, video consultations, secure messaging, and remote patient data monitoring—were used routinely by 35% of chiropractors. The majority (56%) of respondents reported never using telehealth for patient care.

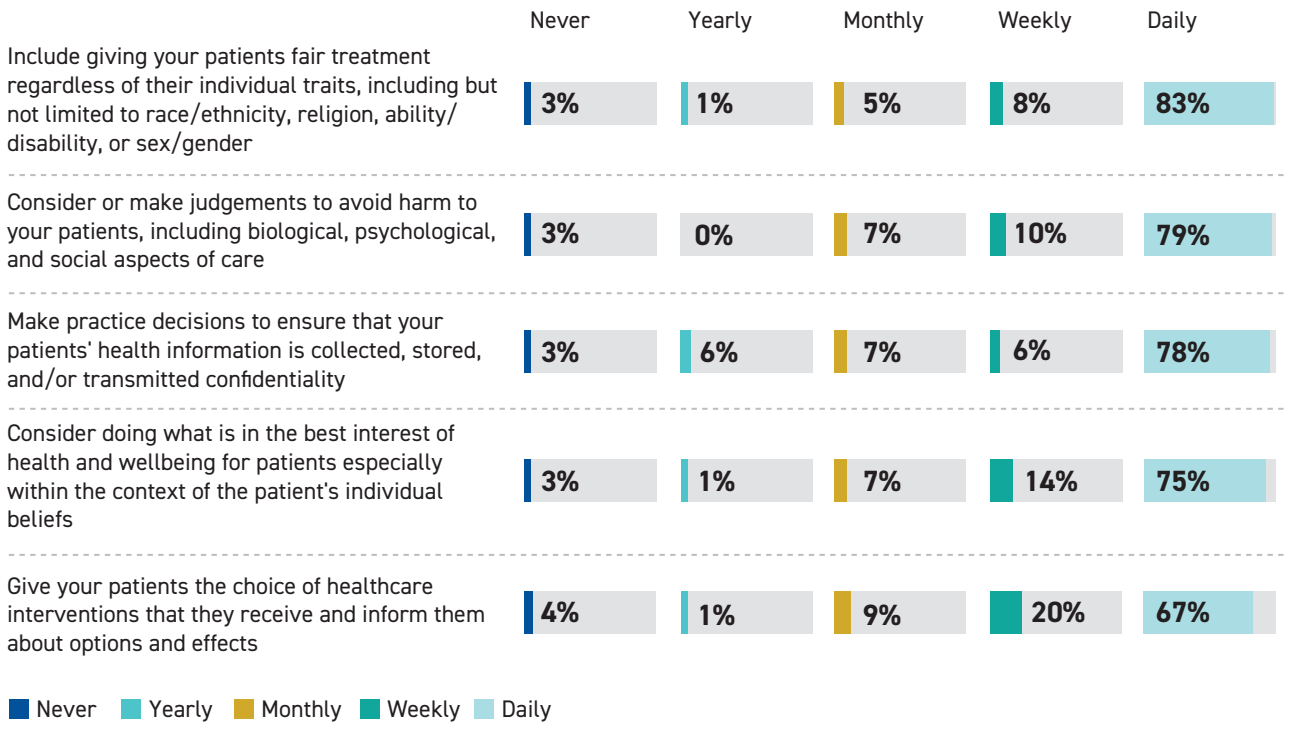

Figure 8.2. Frequency of ensuring confidentiality, prioritizing patient-centered and harm-avoiding care, offering informed choices, and providing fair treatment with a strong emphasis on ethical and inclusive practices.

8.4 Collaboration

Chiropractors reported receiving referrals from other healthcare providers routinely (77%), whereas a minority received referrals yearly (16%) or not at all (6%). The majority (80%) of chiropractors communicated with other healthcare providers on a routine basis. When it comes to collaborative diagnosis or treatment with other healthcare professionals, 71% of respondents engaged in this routinely.

Collaboration with other chiropractors is reported less frequently than with other health professionals. There were 54% of respondents who reported engaging in routine collaborative diagnosis or

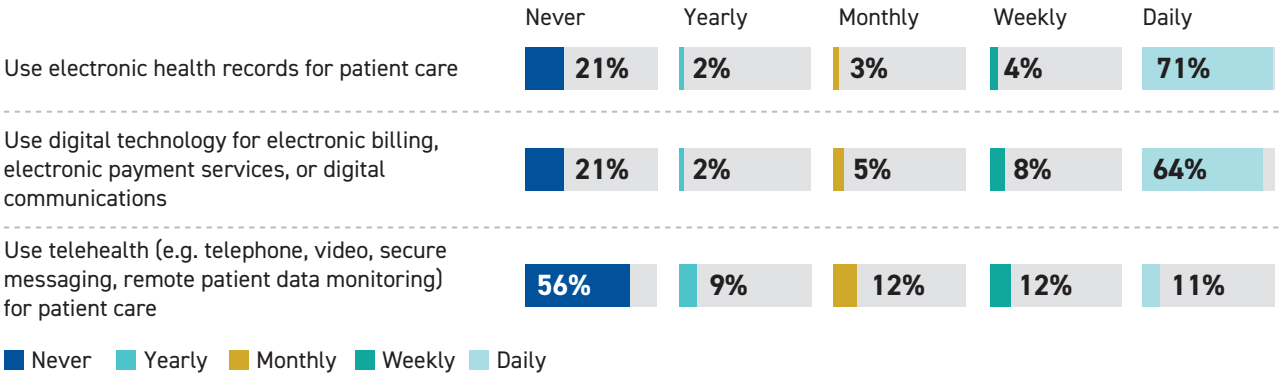

Figure 8.3. Frequency of technology utilization for electronic billing and telehealth.

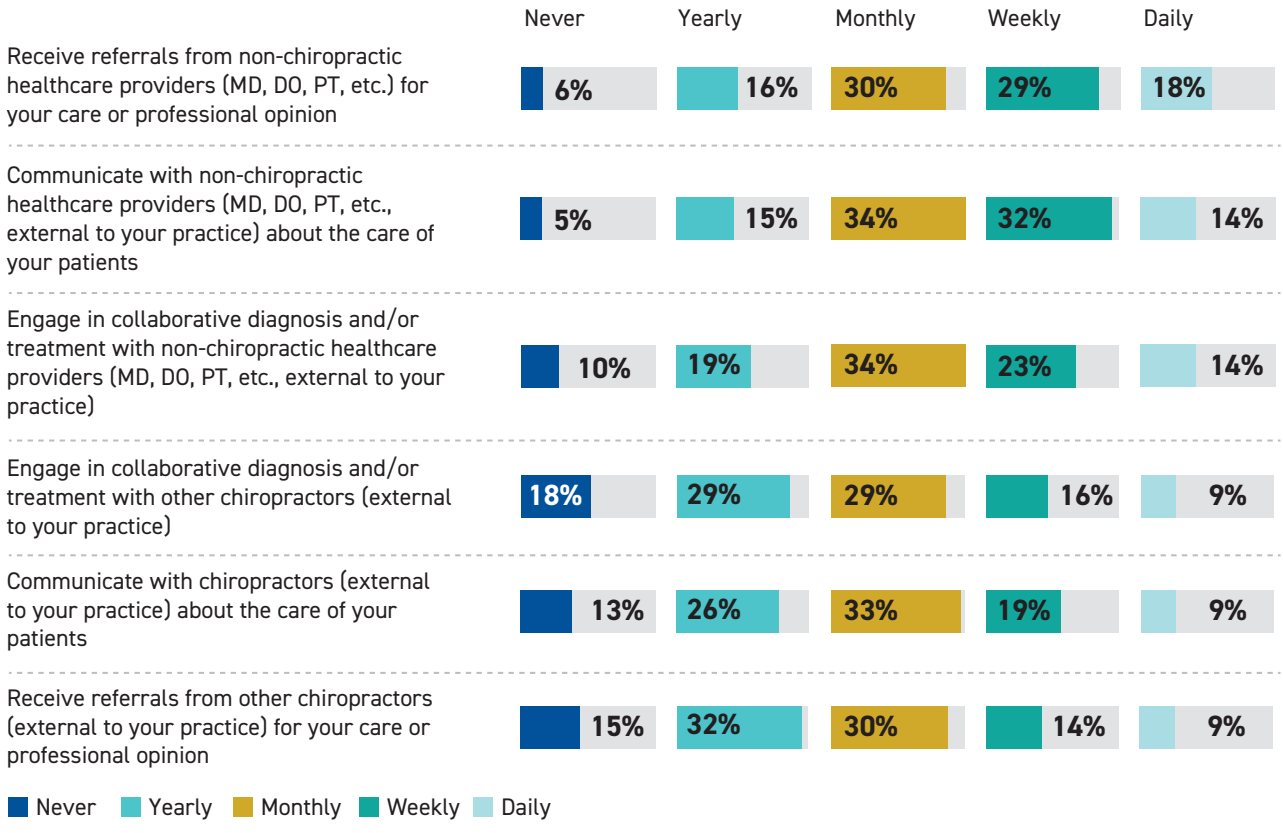

Figure 8.4. Frequency of communication, collaboration, and referrals with both non-chiropractic healthcare providers and external chiropractors.

treatment with chiropractors external to their practice. A larger percentage, 18%, never collaborate with external chiropractors. Communication with chiropractors about patient care follows a similar pattern, with 61% doing so routinely, while 13% never engage in such discussions. Lastly, receiving referrals from other chiropractors routinely was reported at 53%. Thirty-two percent reported receiving referrals from a fellow chiropractor only yearly, and 15% never received them from other chiropractors. Details regarding collaborative behaviors are seen in Figure 8.4.

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Chapter Nine
Conclusion

9.1 Overview

The chiropractic profession is recognized, licensed, and regulated across all 50 states of the U.S. and territories (Christensen et al., 2015; Himelfarb et al., 2020). The establishment of licensure has played a crucial role in defining the profession's scope of practice, while regulatory oversight has reinforced public confidence by ensuring compliance with established standards (Sandefur & Coulter, 1997; Green et al., 2020).

A critical aspect of professional regulation is the need for competency assessments to safeguard public health and safety. To this end, the NBCE administers standardized examinations designed to evaluate the competence of chiropractors who are entering the workforce. These assessments serve to verify that candidates possess the requisite knowledge and clinical skills necessary to practice independently and safely, without the need for direct supervision (Himelfarb, 2019).

A key component of the NBCE evaluative framework is the Practice Analysis of Chiropractic, which uses a systematic process to delineate the essential tasks performed in present day chiropractic practice. This methodology involves identifying the fundamental elements of chiropractic care, developing a structured approach to data collection, gathering and analyzing relevant empirical data, and subsequently reporting findings to stakeholders (Levine et al.,

1983). The NBCE gathers information through the practice analysis study to establish content validity for the prelicensure examinations, ensuring that the assessments accurately reflect the core competencies required for professional practice (Crano et al., 2014, p. 66).

Beyond its role in validating licensure examinations, the Practice Analysis periodically assesses and reports the evolving practices of chiropractic care. The findings of such analyses offer valuable insights to key stakeholders, including the chiropractic community, regulatory organizations, accrediting agencies, educators, insurance providers, and the general public. The Practice Analysis therefore reports an overview of contemporary chiropractic practice.

9.2 Chiropractors in the United States

The profession continues to evolve in many ways, including its demographics. There has been growth in the number of female chiropractors, with 30% of the total chiropractors being female in 2024 and 63% being male (7% preferred not to disclose their sex). Younger cohorts are more balanced with men and women under 30 years of age represented equally. Older age groups have more males. At present, the profession is predominantly male. However, there is a gradual shift toward a more balanced male/female ratio in U.S. chiropractors. With 55% of the patients in chiropractic practice being female, the chiropractic workforce appears to be trending towards a better representation of the population it serves.

Regarding racial and ethnic diversity, the majority of chiropractors are White (69%), but representation among non-White chiropractors has increased by 10% since 2019. The largest minority groups in the profession include Hispanic/Latinx (6%), Asian/Pacific Islander (5%), and African American (3%). These data are trending in the direction of better representing the U.S. population, where non-White individuals comprise 40% of the total demographic (Johnson et al, 2025).

The majority (58%) of the chiropractic workforce is 50 years of age or older. The educational background of chiropractors reflects the profession's evolving academic standards with nearly two-thirds of chiropractors possessing a bachelor's degree. Younger graduates proportionately have more bachelor's and master's degrees. Chiropractors pursue additional certifications through postgraduate diplomate programs, specializing in fields such as rehabilitation, neurology, orthopedics, and sports chiropractic. This trend aligns with broader healthcare developments emphasizing specialization and interdisciplinary collaboration to improve patient outcomes. The majority of chiropractors focus on general chiropractic care and spinal health, while others prioritize community health and rehabilitation.

Income levels and years in practice vary widely within the chiropractic profession. The median annual income for chiropractors in 2024 was $125,000, though reported gross income ranges from under $50,000 to over $500,000 annually, depending on factors such as experience, location, and patient volume. Regional income varies, with states such as New Jersey and Michigan reporting higher median earnings ($200,000+), while states like South Carolina and Utah report lower incomes ($75,000). Chiropractors with more than 40 years of experience represent 10% of the profession, while those in mid-career stages (11–30 years of practice) make up a substantial portion of respondents. Overall, demographic shifts, evolving educational trends, and growing specialization are shaping the future of the chiropractic profession, positioning it for continued adaptation within the U.S. healthcare system.

9.3 Practice Characteristics

The practice characteristics of chiropractors in the U.S. highlight the continued prevalence of private practice ownership, with 49% of chiropractors working in solo-provider offices and 36% in

multi-provider private practice settings. While most chiropractors operate independently, there is a growing integration into multidisciplinary healthcare environments, such as rehabilitation centers, wellness clinics, and hospitals. Regarding workload, 40% of chiropractors report spending 30–39 hours per week on patient care, with additional time allocated to documentation, business management, and professional development.

The location of chiropractic practices has remained stable over time, with urban and suburban areas accounting for the majority (67%) of practices. Chiropractic offices in small towns (24%) and rural areas (8%) are less common but have seen slight growth since 2019.

The number of patients seen weekly varies widely, with one-third of chiropractors reporting 51–100 patient visits per week. The number of patients seen may be influenced by practice setting, patient demographics, and treatment specialization. Reimbursement for chiropractic services primarily comes from out-of-pocket payments (41%) and private insurance (37%); Medicare and Medicaid covering 18% combined.

Continuing education (CE) is a mandatory requirement for chiropractors, varying by state regulations. Chiropractors complete a range of 15–35 hours of CE annually, ensuring they remain informed about advancements in clinical techniques, research, and ethical considerations. These courses are often approved by the FCLB and may cover topics such as diagnostic imaging, risk management, and new treatment modalities.

The demographics of chiropractic patients indicate that 55% are women and 45% are men, consistent with previous patient trends. Patients 31–64 years of age comprise the largest group (44%), followed by younger adults aged 18–30 (23%), and older adults aged 65+ (20%). Pediatric patients account for a proportion (9% for ages 6–17 and 4% for ages 5 and under), showing that chiropractic practice includes the full range of ages throughout a patient's lifespan. These findings suggest that chiropractic care is utilized across different age groups.

9.4 Patient Assessment and Treatment

The most common assessment procedures performed by chiropractors are a problem-focused history, spinal palpation and examination, postural/gait analysis, and standard orthopedic and neurological tests. As part of case management, 82% of chiropractors assess risk factors and possible contraindications to care on a daily basis. Diagnostic imaging is a tool often used in chiropractic practice, with most chiropractors utilizing radiography. Formulating a list of differential diagnoses, a prognosis, and management plan are all routinely performed by chiropractors. Chiropractors rate documentation as the most common and important of communication tasks.

Chiropractic adjustments/manipulation remain the cornerstone of chiropractic treatment. Chiropractors rated adjustments of the spine and extremities as the most frequent and important tasks related to treatment. The majority (87%) of chiropractors use a combination of manual and instrument-assisted techniques when adjusting patients. Soft tissue mobilization procedures are also commonly used. Physiotherapeutic modalities and nutritional recommendations continue to be used at least weekly by 47-64% of respondents.

9.5 Patient Conditions Encountered in Chiropractic Practice

Doctors of Chiropractic encounter patients with a wide variety of conditions in their practices. Whether managing, co-managing, or referring patients for these conditions, the list includes neuromusculoskeletal, visceral, psychological, and systemic disorders. Joint dysfunction/subluxation, neck pain, back pain, osteoarthritis, degenerative joint disease, and muscle strain/myofascial pain are the most common conditions reported. Various injuries and conditions of

the extremities are observed by respondents on at least a weekly basis 38-83% of the time. Chiropractors regularly identify or are aware of patients in their practice with significant co-occurring conditions, including, but not limited to, stress/anxiety and other mental health concerns, obesity, diabetes, osteoporosis, sleep disorders, and disequilibrium/vertigo.

Chiropractors treat a variety of the conditions which they are aware of in their practice. Most of the musculoskeletal pain syndrome diagnoses are treated by the chiropractor with relatively few being co-managed with another type of healthcare provider or referred out of the practice. Co-management is common for systemic and more complex conditions, such as vertigo, fibromyalgia, mental health concerns, and spinal stenosis. Conditions such as joint infection, visceral diseases, vascular disorders, and various cancers predominately are referred to other healthcare providers.

9.6 Limitations

The findings of this study should be interpreted with consideration of several limitations. First, the non-experimental design employed in this research was based on the evaluation of cross-sectional data, which inherently restricts the ability to establish causal relationships among variables. As a result, the study can only infer associations rather than determine cause-and-effect dynamics. Second, the study design did not involve the randomized assignment of selection probabilities for all units in the population. Although efforts were made to minimize selection biases, the extent to which the findings can be generalized to the broader chiropractic population may still be susceptible to bias (Groves et al., 2009). Additionally, the exclusion of part-time and non-practicing chiropractors from the analytical sample may have further affected the representativeness of the results.

Another limitation inherent to survey designs is the use of self-reported survey data, which introduces potential response biases. A fundamental strength of self-reported data is that participants provide direct insight into their own experiences and professional practices. However, response biases may compromise the accuracy, reliability, and validity of the findings (Kerlinger & Lee, 2000; Saris & Gallhofer, 2014). One particularly relevant bias in this context is social desirability bias, in which respondents may consciously or unconsciously adjust their answers to align with socially accepted norms (Edwards, 1958). Previous research has demonstrated that respondents often exhibit consistent patterns of selecting socially desirable responses in self-administered assessments (Dodaj, 2012). Given that this survey required participants to report the frequency of their professional functions and evaluate the risks associated with improper execution of these functions, the possibility of inflated or modified responses must be acknowledged. However, steps were taken to mitigate this concern by ensuring participant anonymity, which has been shown to reduce social desirability effects and encourage more accurate self-reporting.

Additionally, the Importance variable used in this study was constructed as a multiplicative composite of frequency and risk. While this approach is methodologically valid and has been implemented in previous research (Christensen et al., 2015; Himelfarb et al., 2020; Shotts et al., 2019), it remains an artificially derived measure rather than a directly observed variable. The multiplicative nature of the composite means that it is measured on a different scale compared to its constituent variables, which may introduce interpretational challenges. Consequently, while the Importance Index provides meaningful insights into professional task prioritization, caution should be exercised when drawing conclusions from this metric. The findings from this survey describe what chiropractors report related to their clinical practice. This document is not, nor should it be used as, a standard of care.

Despite these limitations—many of which are common challenges in survey research—this study

offers valuable contributions to the chiropractic profession and its stakeholders. The findings of the *Practice Analysis of Chiropractic 2025* serve as an informative resource for state licensing boards, policymakers, insurance providers, educators, and the public, providing a comprehensive snapshot of contemporary chiropractic practice. The study's insights demonstrate the continued development and integration of chiropractic care within the broader healthcare system.

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Glossary

abdominal aortic aneurysm
An abdominal aortic aneurysm is an enlargement of the aorta, the main blood vessel that delivers blood to the body, at the level of the abdomen.

acne
Acne is an inflammatory disease of the pilosebaceous unit in the skin.

activator
An Activator is a type of hand-held instrument used to deliver a force with the goal of restoring motion to the targeted spinal vertebra or joint.

acupuncture
Acupuncture is a traditional Chinese medical practice that involves inserting thin needles into specific points on the body to stimulate the body's natural healing mechanisms. Often used to relieve pain and affect distant functional mechanisms of the body, this therapy is based on the belief that these sites are organized along meridians that carry the life force.

adjunctive treatment
Adjunctive therapies or procedures are provided in support of and in addition to the primary therapy.

adjustment
A chiropractic adjustment, also known as chiropractic manipulation, is a procedure where a chiropractor uses their hands or instrument to apply a controlled force to a spinal joint or other body areas, aiming to improve motion and body function (e.g., correct subluxation, improve joint dysfunction). The term "chiropractic adjustment" is a term unique to the chiropractic profession and has been historically used by chiropractors to describe what they do. The term "manipulation" is a term that is more commonly used in healthcare allowing chiropractors to communicate with other healthcare providers and stakeholders.

amyotrophic lateral sclerosis (ALS)
Amyotrophic lateral sclerosis is a neurodegenerative disease that affects nerve cells in the brain and spinal cord and consequently weakens muscles and impacts physical function. ALS is also known as Lou Gehrig's disease.

anemia
Anemia is a condition in which the blood does not contain enough healthy erythrocytes.

angina
Angina is a type of chest pain caused by reduced blood flow to the heart.

appendicitis
Appendicitis is inflammation, swelling, or infection of the appendix.

associate's degree
An associate's degree in the United States is conferred by a junior or community college after the successful completion of two years of study in a particular field.

asthma
Asthma is a chronic lung disease characterized by recurrent episodes of wheezing, shortness of breath, chest tightness, and coughing.

atelectasis
Atelectasis is the partial or complete collapse of a lung or a section (i.e., lobe) of a lung.

atrophy
Atrophy is a decline in the effectiveness of body tissues and organs due to underuse or neglect.

avascular necrosis
Avascular necrosis is the death of bone tissue due to a lack of blood supply.

bachelor's degree
A bachelor's degree in the United States conferred by a college or university after the successful completion of undergraduate studies.

benign prostatic hypertrophy
Benign prostatic hypertrophy is the enlargement of the prostate gland that can cause urinary problems.

biopsychosocial
The biopsychosocial model in medicine recognizes that health and illness are influenced by the complex interplay of biological, psychological, and social factors, rather than solely biological ones. The biopsychosocial model investigates the interconnections between biology, psychology, and socio-environmental factors. The model examines the roles of these aspects in topics ranging from health and disease models to human development.

bone scan
A bone scan is an image of the concentrations of radioactivity after the internal administration of a radioisotope. The radioisotope concentrates in areas of increased metabolism, such as those caused by an infection or neoplasm.

bracing
Bracing uses external devices (braces) to provide support, stability, and/or immobilization to joints or body parts to aid in healing, prevent further injury, or correct deformities.

Bureau of Labor Statistics
The Bureau of Labor Statistics (BLS) is a federal agency within the U.S. Department of Labor that collects, analyzes, and publishes data on employment, wages, prices, and other economic indicators, providing insights into the labor market and economy.

bursitis
Bursitis is inflammation of a fluid-filled sac (bursa) between a tendon and a bone.

cardiopulmonary
Cardiopulmonary refers to the heart and lungs. More specifically, it encompasses the functions and conditions that affect both systems.

carpal tunnel syndrome
Carpal tunnel syndrome is a condition that occurs when the median nerve, which runs through the carpal tunnel in the wrist, becomes compressed. Symptoms include numbness, tingling, and pain in the hand and forearm.

case history
A case history is detailed record of a patient's health, including their chief complaint and present illness, past health conditions, treatments, and relevant personal and family history, used to aid in diagnosis and treatment planning.

case management plan
A case management plan is the coordination of diagnostic and treatment procedures to help meet a patient's healthcare needs, including assessment, planning, implementation, coordination, monitoring, and evaluation.

certification
Certification is the official recognition that a practitioner has attained a standard through education and training that is beyond the basic level of competency necessary to practice in a profession.

cervical spine
The cervical spine is comprised of the uppermost seven vertebrae that constitute the bony structure of the neck.

chief complaint
A chief complaint is considered the primary symptom or health concern that a patient states as the reason for seeking healthcare.

chiropractic
Chiropractic is a health profession concerned with the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system, and the effects of these disorders on the function of the nervous system and general health. The term "chiropractic" may be used as an adjective (e.g., chiropractic table) or as a noun when referring to the profession (e.g., in the profession of chiropractic). A term is combined from two Greek words: "cheir" (hand) and "praktos" (done). When combined, the word translates literally as "done by hand."

cholecystitis
Cholecystitis is inflammation of the gallbladder.

chronic obstructive pulmonary disease (COPD)
Chronic obstructive pulmonary disease (COPD) is a group of lung diseases characterized by persistent airflow limitation and chronic inflammation of the airways. This inflammation leads to damage to the air sacs (alveoli) in the lungs, resulting in reduced elasticity and difficulty breathing.

claudication (neurogenic)
Neurogenic claudication presents as leg and low back pain and paresthesia caused by mechanical pressure on the cauda equina and/or ischemia of the cauda equina, frequently from spinal canal stenosis.

clinical impression
A clinical impression refers to a chiropractor's initial opinion or understanding of a patient's condition based on their examination and gathered information, before a definitive diagnosis is established.

colic
Colic is intense, crampy pain in the abdomen that comes and goes abruptly, often caused by increased pressure in hollow organs like the intestines, gallbladder, or urinary tract, and can occur in both infants and adults.

colitis
Colitis is inflammation of the inner lining of the colon.

collaborative care
Collaborative care involves different healthcare professionals working together to provide coordinated, patient-centered care, often focusing on chronic or complex conditions.

co-management
Co-management is the sharing of responsibility for a patient's healthcare among two or more practitioners.

computed tomography (CT) scan
A computerized tomography (CT) scan, also known as a CAT scan, is an imaging technique that uses X-rays to create detailed cross-sectional images of the body.

concussion
A concussion is a traumatically induced transient disturbance of brain function, a type of mild traumatic brain injury caused by a blow or jolt to the head, leading to temporary disruption of normal brain function.

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

consultation
A consultation is an opinion or treatment recommendation from another healthcare provider, usually a specialist in another field.

content validity
Content validity is 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.

contraindication
A contraindication is a condition or factor that makes it unsafe or inappropriate to use a specific treatment or procedure. It indicates that the potential risks of the treatment outweigh the potential benefits. Absolute contraindications are those in which a condition completely prohibits the use of a treatment or procedure. Whereas a relative contraindication is a condition that may make a treatment or procedure less advisable, but it may still be considered if the potential benefits outweigh the risks.

correlation coefficient
A correlation coefficient is an index that indicates the extent to which two variables are related and can range from -1.00 through 0 to +1.00.

cranial nerves
Cranial nerves are twelve pairs of nerves that can be seen on the ventral (bottom) surface of the brain.

credentialing
Credentialing is a systematic process verifying a healthcare provider's qualifications, education, training, and experience to ensure they meet established standards and are qualified to provide safe and effective patient care.

Cronbach's alpha
Cronbach's alpha is a ratio of two variances that illustrates how well a test measures its intended target.

degenerative joint disease
See osteoarthritis.

dermatitis
Dermatitis is Inflammation of the skin.

demographics
Demographics include statistical information about a certain population.

dermatome
A dermatome is the area of the skin in human anatomy that is mainly supplied by the branches of a single spinal sensory nerve root.

diabetes
Diabetes, also known as diabetes mellitus, is a chronic metabolic disorder characterized by persistently high blood sugar (glucose) levels, resulting from the body's inability to properly use or store glucose for energy.

diagnosis
Diagnosis is the determination of the presence or nature of a disease process.

diagnostic imaging studies
Diagnostic imaging studies are procedures that use various technologies to create images of the inside of the body, helping providers to diagnose, monitor, or treat health conditions. The results of diagnostic imaging procedures are displayed on films or in digital formats.

diathermy
Diathermy is a therapeutic treatment that uses high-frequency electric currents, microwaves, or ultrasound to generate heat within tissues, often for pain relief, muscle relaxation, and improved blood circulation.

differential diagnosis
A differential diagnosis is a possible condition that a patient may have that shares similar clinical features of other conditions.

diplomate
A chiropractic diplomate is a chiropractor who has been certified as a clinical specialist by a recognized board.

diverticulitis
Diverticulitis is an inflammation or infection in one or more small pouches in the digestive tract.

doctor of chiropractic, chiropractor
A doctor of chiropractic is someone who has earned a chiropractic degree at a doctorate level and may use the title "doctor of chiropractic." Some countries offer bachelor's or master's level programs, but only the designation "doctor of chiropractic" or "DC" may be used for chiropractic doctors. The more generic term "chiropractor" may be used for anyone with a chiropractic degree.

doctoral/doctorate degree
A doctoral degree is the highest degree conferred in the United States by a college or university recognizing the recipient as a specialist in a particular field.

documentation
Documentation is the recording of patient examination and treatment information, including case management decisions.

Doppler ultrasound
Doppler ultrasound is an imaging technique that uses high-frequency sound waves to visualize and measure blood flow. It is a non-invasive procedure that provides real-time information about the direction, velocity, and volume of blood in various blood vessels.

drop-section
A drop section is a component of an instrument-assisted chiropractic adjusting table that has sections that can be raised and which drop slightly, allowing the chiropractor to apply a gentle, controlled force to the spine during an adjustment.

dry needling
Dry needling is a technique used to treat musculoskeletal pain and movement issues. Dry needling involves inserting thin needles (similar to those used in acupuncture) into the skin and underlying tissues, particularly into areas of muscle tightness or pain known as myofascial trigger points.

dummy coded
Dummy coding is the process of coding a categorical variable into dichotomous variables. For example, in the case of gender, male category is recoded into a dichotomous variable: 1 = male; 2 = otherwise; female category is recoded into a dichotomous variable: 1 = female; 2 = otherwise, etc.

electrocardiogram (ECG or EKG)
An electrocardiogram is a recording of the electrical activity of the heart over time.

electronic health record (EHR)
An electronic health record is a digital version of a patient's health record, maintained by healthcare providers over time, encompassing key administrative and clinical data relevant to their care, and accessible to authorized clinicians and staff across multiple healthcare organizations.

emphysema (pulmonary)
Emphysema is a chronic lung condition caused by enlargement of the air space in pulmonary alveoli, resulting in shortness of breath.

endocrine
Endocrine pertains to hormones or to structures that release their products into the blood or lymph.

enzyme
An enzyme is a substance produced by a living organism that acts as a catalyst of a specific biochemical reaction.

equilibrium
An equilibrium is the state of postural balance.

ergonomics
Ergonomics is the science of creating an efficient human work environment. It typically addresses anatomical, biomechanical, psychological, and physiological factors.

esophageal reflux
Esophageal reflux is a digestive disease in which stomach acid or bile irritates the esophageal lining.

ethnicity
Ethnicity refers to a shared culture and way of life, often including language, religion, traditions, and cultural practices, that distinguishes a group of people from others. It's a social construct, not based on biological traits, and can be complex and fluid, with individuals identifying with multiple ethnicities or changing their ethnic identification over time.

evidence-based practice (EBP)
Evidence-based practice is the integration of the best available scientific evidence with clinical expertise and patient values to make informed decisions about patient care. This approach also considers how to best help the patient when little or no evidence is available, or when the scientific evidence is inconclusive.

exam validity
Exam validity is the evidence supporting the appropriateness of the use of exam scores.

extra-spinal articulation
Extra-spinal articulations refer to articulations of the extremities of the human body.

extremity subluxation/joint dysfunction
An extremity subluxation/joint dysfunction is an alteration of the normal biomechanical or physiological dynamics of extra-spinal articular structures.

eyes, ears, nose, throat (EENT) examination
An EENT examination focuses on the eyes, ears, nose, and throat.

fibrocystic breast
Fibrocystic breast is characterized by changes in the breast characterized by the development of fluid-filled sacs and an overgrowth of fibrous tissue.

fibromyalgia
Fibromyalgia is a chronic condition characterized by achiness, tenderness, and stiffness of the muscles and adjacent soft tissues.

flexion-distraction therapy
Flexion-distraction therapy (e.g., Cox Flexion-Distraction Technique) method is a specialized chiropractic technique that uses a specially designed table to gently stretch and decompress the spine, aiming to alleviate pain and restore proper spinal function.

frequency
Frequency is the estimated number of times the practitioner completing the survey performed the specified activity.

gender
Gender refers to the socially constructed characteristics, roles, and behaviors associated with being male, female, or other gender identities, distinct from biological sex, which is a social construct that varies across cultures and time.

gout
Gout is an inflammatory arthritis that develops in people with high concentrations of uric acid, which can form sharp crystals in a joint, which cause severe pain, redness, tenderness, and swelling.

Health Insurance Portability and Accountability Act (HIPAA)
HIPAA is a federal law requiring the creation of national standards to protect sensitive patient health information from being disclosed without the patient's consent or knowledge.

heat/cold packs
Heat or cold packs are used as adjunctive therapies and can be heated or chilled to relax muscles, improve blood flow, reduce swelling, and alleviate pain.

hemorrhoid
A hemorrhoid is a swollen and inflamed veins in the rectum and anus that cause discomfort and bleeding.

herpes simplex
Herpes simplex is a group of acute infections (oral and genital herpes) caused by herpesviruses 1 and 2.

herpes zoster
Herpes zoster is an acute condition caused by the reactivation of the varicella-zoster virus (chickenpox), resulting in a painful rash.

hiatal hernia
Hiatal hernia is a condition in which the upper part of the stomach bulges through an opening in the diaphragm (the thin muscle separating the chest from the abdomen).

holistic
Holistic care refers to an approach to healthcare that considers the whole person, rather than just the symptoms of a disease. It emphasizes treating the body, mind, and spirit as interconnected entities and seeks to promote overall well-being.

homeopathy
Homeopathy is an alternative health system based on the belief that the body can cure itself through the use of tiny amounts of natural substances, like plants and minerals, to stimulate the healing process.

hyperkyphosis
Hyperkyphosis is an abnormal increase in the posterior convexity of the spine.

hyperlordosis of cervical or lumbar spine
Hyperlordosis is increased anterior convexity of the cervical or lumbar spine.

hypolordosis of cervical or lumbar spine
Hypolordosis is decreased anterior convexity of the cervical or lumbar spine.

importance score
The importance score is the product of the frequency with which a professional function is performed, multiplied by the risk to a patient's health or safety due to omission or poor performance of the activity. The importance score is used commonly in role delineation studies.

incontinence
Incontinence is a condition characterized by the involuntary loss of urine or stool. It occurs when the bladder or bowel muscles and/or nerves do not function properly, leading to an inability to control the release of body waste.

informed consent
Informed consent is the process of providing a patient with the knowledge to understand the risks, benefits, alternatives to, and consequences of a treatment or lack thereof, and obtaining approval from the patient to proceed with the treatment as described. The informed consent process allows the patient to make a voluntary and informed decision about their care.

inguinal hernia
An inguinal hernia is the bulging of soft tissue through a weak point in the abdominal muscles.

instrument-assisted chiropractic adjustment
An instrument-assisted chiropractic adjustment uses technology, typically a mechanical device (e.g., Activator, drop-section, flexion-distraction, etc.), to facilitate the delivery of a force to the patient's body.

insurance
Health insurance refers to a type of insurance that covers the whole or a part of the risk of a person incurring healthcare expenses due to illness or injury.

interdisciplinary team
An interdisciplinary team is a group of professionals from different disciplines who collaborate to provide comprehensive care to a patient, addressing their physical, psychological, and social needs.

interprofessional care
Interprofessional care involves healthcare professionals from different disciplines collaborating to

deliver patient care, focusing on shared goals and leveraging diverse skills to improve patient outcomes.

intervertebral disc syndrome
Intervertebral disc syndrome is a condition characterized by the breakdown or degeneration of one or more of the discs that cushion the vertebrae, leading to pain, and potentially nerve compression. This syndrome typically presents as episodic low back pain with possible sciatic pain and progressive buttock, thigh, calf, and/or heel pain. Weakness, numbness, and decreased reflexes may also be present in the extremity involved.

job inventory
A job inventory is a list of tasks and functions performed on a job, which serves as the basis for forming a job analysis.

joint dysfunction
A joint dysfunction is a condition in which an articulation does not have normal movement. The movement may be insufficient, excessive, or in an abnormal pattern.

licensure
Licensure is the process of granting a license that is required by law to practice a profession. This is the most restrictive form of occupational regulation because it prohibits anyone from engaging in activities covered by the scope of practice without permission from a government agency.

Likert scale
The Likert scale is a rating scale used in psychometrics to measure how people feel about a subject. This scale was invented by psychologist Rensis Likert, and the answers include strongly disagree, disagree, neutral, agree, and strongly agree.

lumbar spine
The lumbar spine is made up of the lowermost five vertebrae of the spine.

lumbopelvic
The term lumbopelvic is related to the lumbar region consisting of the dorsal lower spine and pelvis.

magnetic resonance imaging (MRI)
Magnetic resonance imaging is a diagnostic imaging modality that utilizes a magnetic field and radiofrequency transmission and reception to produce images of the body. It is especially valuable for soft tissue visualization.

management plan
A management plan is a comprehensive, individualized plan outlining the chiropractic care and support needed for patients The plan assists with managing ongoing health issues and is developed collaboratively with patients.

manipulation
A chiropractic manipulation, also known as a chiropractic adjustment, is a procedure where a chiropractor uses their hands or instrument to apply a controlled force to a spinal joint or other body areas, aiming to improve motion and body function (e.g., improve joint dysfunction, correct subluxation). The term “chiropractic adjustment” is a term unique to the chiropractic profession and has been historically used by chiropractors to describe what they do. The term “manipulation” is a term that is more commonly used in healthcare allowing chiropractors to communicate with other healthcare providers and stakeholders.

manual chiropractic adjustment
A manual chiropractic adjustment is a procedure by which a chiropractor’s hands directly contact the patient’s body to deliver a force to the articulations and/or soft tissues of the patient.

master’s degree
A master’s degree is conferred by a graduate school, usually requiring at least 1 year of study after a bachelor’s degree.

mean
The mean is an arithmetic average obtained by adding up all the values and then dividing the resulting total by the number of values.

Medicaid
Medicaid is a state and federal healthcare service reimbursement program for people with limited income and resources.

Medicare
Medicare is a federal program that reimburses the costs of necessary healthcare services for the disabled and elderly.

metabolic syndrome
Metabolic syndrome is a cluster of conditions (high blood pressure, high blood sugar, excess abdominal fat, high triglycerides, and low HDL cholesterol) that increase the risk of heart disease, stroke, and type 2 diabetes.

metastasis
Metastasis is the spread of cancer cells from their original (primary) tumor site to other parts of the body.

methodology
Methodology is the design of a scientific research study or the procedures utilized in the study.

Military Health System
The enterprise within the U.S. Department of Defense that provides healthcare to active duty and retired U.S. Military personnel and their dependents.

modalities
Modalities are various methods or types of treatment or therapeutic agents, which are often physical, used to address a patient's condition or injury. Examples include muscle techniques, heat/cold packs, ultrasound, stretching, joint mobilization, electrical stimulation, and traction.

multidisciplinary
Multidisciplinary pertains to the presence of several healthcare disciplines at a single facility or the utilization of several healthcare disciplines in the treatment of a patient.

multiple sclerosis
Multiple sclerosis is a chronic autoimmune disease that affects the central nervous system (brain and spinal cord). It occurs when the body's immune system mistakenly attacks the myelin sheath, a protective layer that covers and insulates nerve fibers. This attack causes inflammation and damage to the myelin, leading to disruptions in nerve signal transmission.

myocardial infarction
Myocardial infarction, also known as a heart attack, is a health emergency where blood flow to the heart is severely reduced or cut off, causing the heart muscle to die due to lack of oxygen.

myofascial tissue
Myofascial tissue is thin strong, fibrous connective tissue that extends throughout the body to provide support and protection to muscles and bones.

myofasciitis
Myofasciitis, also known as Myofascial Pain Syndrome (MPS), is a common chronic musculoskeletal condition characterized by localized muscle pain, often with tender spots (trigger points) and referred pain, stemming from chronic muscle strain and aseptic inflammation.

myotomes
A myotome is a set of muscles innervated by a single spinal nerve.

narrative report
A narrative report is a detailed, written document that summarizes a patient's health history, treatment, and prognosis, often used in legal contexts like personal injury cases to demonstrate the severity of injuries and the need for compensation.

National Board of Chiropractic Examiners (NBCE)
The NBCE is the organization that prepares and administers standardized examinations for qualified applicants in the United States. The legal agencies that govern the practice of chiropractic within each jurisdiction may accept, at their discretion, those individuals who have successfully completed any or several of these examinations. In addition, the NBCE provides test and measurement services to the chiropractic profession.

nerve conduction velocity (NCV)
Nerve conduction velocity is the recording of the electrical activity of peripheral nerves over time while at rest or during electrical stimulation.

needle electromyography (EMG)
Needle electromyography (EMG) is the recording of the electrical activity of skeletal muscle over time while at rest, during voluntary contraction, or during electrical stimulation.

neuralgia
Neuralgia is a condition characterized by severe, burning, or shooting pain that radiates along the course of a nerve. It occurs due to irritation or damage to a nerve, resulting in abnormal nerve signals that send pain impulses to the brain.

neurologic examination
A neurologic examination is an assessment of the nervous system and its functions.

neuromusculoskeletal (NMS) system
A term encompassing three bodily systems: neurological, muscular, and skeletal systems.

neuropathy
Neuropathy is the damage to or dysfunction of the nerves. It can affect any part of the nervous system, including the peripheral nerves (nerves outside the brain and spinal cord), cranial nerves (nerves that control facial functions), and autonomic nerves (nerves that control involuntary functions like digestion and heart rate).

occiput
The occiput is the back of the head or skull.

orthopedics
Orthopedics is the branch of healthcare specializing in the prevention and treatment of injuries or diseases of the skeletal system, joints, and associated structures.

orthotic
An orthotic is an orthopedic appliance or apparatus used to support, align, prevent, or correct deformities or to improve the functions of parts of the body.

osteoarthritis
Osteoarthritis is a chronic degenerative joint disease that causes the breakdown of cartilage, the protective tissue that cushions the ends of bones in joints. Osteoarthritis is defined as a condition characterized by structural changes in the joints, including loss of cartilage, bone formation (osteophytes), and joint space narrowing. Clinical symptoms include pain, stiffness, and reduced range of motion.

osteomalacia
Osteomalacia is a metabolic bone disease characterized by softening and weakening of the bones due to inadequate mineralization (deposition of calcium and phosphorus).

osteoporosis
Osteoporosis is a systemic skeletal disease characterized by low bone mineral density and microarchitectural deterioration of bone tissue, leading to increased fragility and a higher risk of fractures.

palpation
Palpation is an examination technique in which the chiropractor feels body tissues for the purpose of identifying and diagnosing health conditions and detect abnormalities.

pain scale ratings
A pain scale rating is a self-reporting instrument for rating pain on a common quantitative scale.

pancreatitis
Pancreatitis is inflammation of the pancreas.

PART format
The PART format is a documentation method that incorporates a patient's pain/tenderness, asymmetry, range of motion, and tissue tone. This format is required for Medicare reimbursement of chiropractic services.

Part I, Part II, Part III, Part IV
The four components that comprise the NBCE examinations. Parts I–III are written/computerized assessments, while Part IV is a practical examination.

parkinsonism
Parkinsonism is a clinical syndrome characterized by a group of movement symptoms that are similar to those seen in Parkinson's disease. These symptoms include tremor, rigidity, bradykinesia (slow movements) and postural instability.

pathology
A pathology is any deviation from health and may include a disease process; abnormal structural or functional changes; or alterations in tissues, organs, or bodily functions caused by the disease.

patient assessment
Patient assessment encompasses the systematic evaluation of a patient's conditions, needs, capabilities, and preferences. Assessment is designed to identify the underlying causes of symptoms through a structured and methodical approach, ensuring accurate diagnosis and effective care planning. This process often involves a combination of history taking, physical examination, and the application of clinical reasoning to uncover factors contributing to a patient's health concerns.

patient-centered
Patient-centered care is a healthcare approach that prioritizes the patient's needs, preferences, and values throughout their care, ensuring they are actively involved in decisions about their treatment and well-being.

pediatrics
Pediatrics is a branch of medicine that focuses on the health and well-being of infants, children, and adolescents. It encompasses the prevention, diagnosis, and treatment of diseases and conditions that affect this age group, from birth through young adulthood.

peripheral neuritis
Peripheral neuritis, also known as peripheral neuropathy, is a condition where damage or dysfunction of the peripheral nerves, which transmit signals between the brain and spinal cord and the rest of the body, leads to various symptoms like pain, numbness, and weakness.

personal injury
Personal injury in a legal context refers to harm or damage to a person's body, mind, or emotions, which results from another party's negligence or intentional actions.

physical examination
Physical examination is a comprehensive assessment of a patient's overall health, involving inspection, palpation, percussion, and auscultation, to identify potential health issues or conditions.

physiotherapeutic modality
Physiotherapeutic modalities include the application of thermal, mechanical, electromagnetic or light energies for therapeutic purposes. They are commonly used to provide pain reduction, reduce inflammation, and/or improve motion or circulation.

plantar fasciitis
Plantar fasciitis is an inflammatory condition of the plantar fascia, which causes pain, typically in the

heel or arch of the foot, especially when taking the first few steps in the morning or after periods of rest.

pneumothorax
Pneumothorax is a collapsed lung.

polycystic ovary
Polycystic ovary syndrome (PCOS) is a hormonal imbalance that occurs when the ovaries create excess hormones. This hormonal disorder characterized by irregular periods, excess androgen levels, and cysts on the ovaries, leading to symptoms like irregular periods, excess hair growth, acne, and fertility problems.

postural syndrome
In chiropractic, postural syndrome refers to pain and discomfort arising from prolonged periods of poor posture, causing strain on muscles, tendons, and soft tissues, often leading to muscle imbalances and pressure on the spine and other body structures.

practice analysis
A practice analysis, also known as a job or role analysis, is a systematic process that examines the tasks, knowledge, skills, and abilities required for a specific job or profession, often used to validate licensure and certification exams.

problem-focused case history
A problem-focused case history is a concise history that focuses on the patient's chief complaint and a brief history of the present illness, often used in situations where a thorough history isn't necessary or possible.

professional functions
Professional functions are the specific duties, responsibilities, and activities that healthcare professionals perform, which may encompass tasks related to diagnosis, treatment, prevention, and health promotion, all while adhering to ethical principles and maintaining competence.

prognosis
Prognosis refers to the predicted course and outcome of a disease or condition. It describes the likelihood of recovery, the potential complications, and the long-term outlook for the patient.

psoriasis
Psoriasis is a chronic, non-contagious skin condition characterized by the rapid buildup of skin cells, leading to the formation of red, scaly plaques. Psoriasis is an autoimmune disorder, where the body's immune system mistakenly attacks healthy skin cells.

psychometrics
Psychometrics is the science and technology that focus on the development of mental and physical assessments and the analysis of the outcomes of such measures.

race
Race is defined as a social construct, a concept that categorizes people based on perceived physical or social characteristics, rather than a biological reality, and is used to maintain social hierarchies and power dynamics.

radiculitis
Radiculitis is inflammation of the nerve roots that exit the spinal cord. It is a condition that causes pain, numbness, tingling, and weakness in the arms or legs, depending on which nerve roots are affected.

radiculopathy
Radiculopathy is when there is compression, inflammation, or irritation of a spinal nerve root, which causes pain, numbness, tingling, and weakness in the arms, legs, back, or neck.

radiograph
A radiograph is a photographic image produced by the action of electromagnetic radiation (X-rays) or other radiation, used to visualize internal structures of the body.

range of motion
Range of motion is the extent to which a part of the body can be moved around a joint or a fixed point; the entirety of movement a joint is capable of doing.

rating scale
A rating scale is a mechanism used to obtain appraisals and/or opinions from survey respondents and to express these on a common quantitative scale.

regulation
Chiropractic regulation involves state-level licensure and national board certification, focusing on the practice of chiropractic. Within the U.S., each state and jurisdiction individually determine which occupations require regulation and which qualifications are necessary to participate in each occupation.

rehabilitation
Rehabilitation refers to a process aimed at restoring or improving physical, mental, and social functioning after an injury, illness, or disability. The goal of rehabilitation is to enable individuals to live independently and can involve restoring lost functions and improving overall quality of life.

reliability
Reliability is the degree to which test scores are free of errors of measurement.

response bias
Response bias is the tendency of a person to answer questions inaccurately. See social desirability bias.

response rate
Response rate is the percentage of practitioners selected to complete the Survey of Chiropractic Practice who either completed the survey or who were accounted for by other means.

rheumatoid arthritis
Rheumatoid arthritis is a chronic autoimmune disease that primarily affects the joints. It causes inflammation, pain, stiffness, and eventual destruction of the joints.

risk factor
A risk factor is the degree of risk to public health or patient safety as perceived by survey respondents relative to the omission or poor performance of activities listed in the Survey of Chiropractic Practice.

sampling design
A sampling design is the specified method by which individuals are selected to be surveyed.

sciatica
Sciatica is a condition characterized by pain that travels from the buttock down to the back of the leg.

scoliosis
Scoliosis is an abnormal lateral curvature of the spine.

scope of practice
Scope of practice refers to the range of services, procedures, and tasks that a healthcare professional is legally and ethically permitted to perform within their profession. It outlines the boundaries of a healthcare provider's practice, defining what they can and cannot do in their role.

self-care strategies
Self-care strategies are actions that patients can take to accelerate their healing, prevent recurrences, and enhance their health.

sex
Sex refers to biological and physiological characteristics that differentiate individuals as male or female, including chromosomes, hormones, and reproductive organs.

SOAP note
A SOAP note is a healthcare practitioner's daily notes used in recording patient care. In addition to the standard SOAP format (Subjective, Objective,

Assessment, Plan), other common progress note formats may include DAP (Data, Assessment, Plan), BIRP (Behavior, Intervention, Response, Plan), and PIE (Presentation, Intervention, Evaluation).

soft tissue release technique

Soft tissue release techniques are manual therapies that address muscle tension, pain, and restricted movement by targeting areas of stiffness and adhesions within muscles, tendons, ligaments, and fascia through specific stretches and manipulations.

social desirability bias

Social desirability bias is the tendency of survey respondents to answer questions in a manner that will be viewed favorably by others.

specialty board/council

A specialty board/council is a recognized authority that grants certification in a specific field of study.

spinal listing

In chiropractic, spinal listing refers to a system used to describe the position or motion of vertebral segments relative to adjacent segments, often used to identify and describe spinal joint dysfunctions or subluxations.

spinal manipulation

Chiropractic spinal manipulation, also known as chiropractic adjustment, is a technique where a chiropractor uses their hands or an instrument or device to apply a controlled force aiming to improve function, mobility, and/or reduce pain.

spinal stenosis

Spinal stenosis is a condition where the spinal canal, the space within the spine that contains the spinal cord and nerve roots, becomes narrowed. This narrowing can put pressure on the nerves, leading to pain, numbness, weakness, and other symptoms.

sprain

A sprain is a soft tissue injury that occurs when a ligament is stretched or torn, which can result from a sudden twisting, overstretching, or impact on a joint.

standard deviation

Standard deviation is the measure of the variability, spread, or dispersal of a set of scores around their mean value. A low standard deviation indicates that the values tend to be close to the mean, while a high standard deviation indicates that the values are spread out over a wider range.

standard error

Standard error is an abbreviation of the standard error of 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 is corrected for sampling from a finite population.

Standards for Educational and Psychological Testing

The "Standards for Educational and Psychological Testing" (SEPT) is a joint publication by the American Educational Research Association (AERA), the American Psychological Association (APA), and the National Council on Measurement in Education (NCME), providing guidance on best practices in test development, use, and interpretation.

strain

A strain refers to an injury to a muscle or tendon, which occurs when the muscle or tendon is overstretched or torn, typically due to sudden or excessive force or overuse.

stroke or cerebrovascular condition

Cerebrovascular conditions encompass disorders affecting the brain's blood vessels and blood supply, potentially leading to conditions like stroke, transient ischemic attacks (TIAs), aneurysms, and vascular malformations.

subluxation

The term subluxation is used in this document within the context of the chiropractic lexicon and paradigm, such as, a joint dysfunction that can be

addressed through chiropractic adjustment/manipulation. Chiropractic subluxation is a dysfunction in a joint or motion segment in which alignment, movement integrity and/or physiological function are altered, although contact between joint surfaces remains intact. The term "subluxation" used in this document does not imply the medical definition, which means partial joint dislocation.

syndrome
A syndrome is a group of signs and symptoms that occur together and characterize a specific disease or condition. Syndromes are typically defined by a set of characteristic features that may include physical findings, symptoms, diagnostic imaging, and/or laboratory results.

synovitis
Synovitis is an inflammatory condition that affects the synovium, the thin membrane that lines the joints. It causes swelling, pain, and redness in the affected joint.

taping
Taping is the application of tape, often athletic or kinesiology tape, to the skin to provide support, reduce pain, and potentially aid in the healing and rehabilitation of muscles, joints, and soft tissues.

tarsal tunnel syndrome
Tarsal tunnel syndrome is a condition characterized by compression of the posterior tibial nerve as it passes through the tarsal tunnel in the ankle, leading to pain, numbness, or tingling in the foot and ankle.

temporomandibular joint (TMJ) syndrome
TMJ syndrome includes pain and dysfunction of the jaw joint and the surrounding muscles.

tendinopathy
Tendinopathy is a broad term that describes a condition characterized by pain, reduced function, and often, impaired tendon healing, typically resulting from overuse or repetitive strain.

thoracic outlet syndrome
Thoracic outlet syndrome (TOS) is a group of conditions where nerves or blood vessels in the area between the neck and shoulder (the thoracic outlet) are compressed, potentially causing pain, numbness, and weakness in the arm and hand.

thoracic spine
The thoracic spine is made up of the twelve vertebrae located between the cervical and lumbar spine. The ribs articulate with the thoracic vertebrae.

torticollis
Torticollis is a condition characterized by an involuntary and persistent tilt of the head and neck to one side. It occurs due to an imbalance in the muscles of the neck, leading to muscle shortening and tightening.

traction
Traction is a therapeutic technique utilizing the application of axial tension to a body segment.

type I error
Type I error is the rejection of a true null hypothesis (also known as a "false positive"). A type II error is the non-rejection of a false null hypothesis (also known as a "false negative").

ulcer
An ulcer is a break or erosion in the lining of an organ or tissue, resulting in an open sore. It can occur in various parts of the body, including stomach, mouth, intestines, skin, or extremities.

ultrasound (therapeutic)
Therapeutic ultrasound is a therapeutic modality that uses sound waves to create vibrations and/or heat in targeted tissues, aiming to relieve pain, improve circulation, and promote healing, distinct from diagnostic ultrasound used for imaging.

ultrasound (diagnostic)
Diagnostic ultrasound, also known as sonography or diagnostic sonography, is an imaging technique

that uses high-frequency sound waves to create images of internal body structures for diagnostic purposes.

validity
Validity is the degree to which inferences from test scores are appropriate, meaningful, or useful.

value-based care
Value-based care focuses on improving patient outcomes and quality of care while controlling costs, rather than simply focusing on the volume of services provided. It incentivizes healthcare providers to deliver high-quality, efficient care, and is measured by patient health outcomes and satisfaction.

variable
A variable is an element, feature, or factor that is liable to vary or change.

vertigo
Vertigo is a condition characterized by a false sensation of spinning or movement, even when there is no actual motion. It is caused by an imbalance in the inner ear's vestibular system, which is responsible for maintaining balance.

Veterans Health Administration (VHA)
The Veterans Health Administration is the largest integrated healthcare system in the United States, providing care at 1,380 healthcare facilities, including 170 VA Medical Centers and 1,193 outpatient sites of care of varying complexity (VHA outpatient clinics) to over 9.1 million Veterans enrolled in the VA healthcare program.

wellness
Wellness is a state of optimal physical, mental, and emotional health; not merely the absence of disease or infirmity.

whiplash
Whiplash is a neck injury resulting from a sudden, forceful back-and-forth movement of the neck, often occurring in motor vehicle collisions.

whole health
Whole health is a holistic approach to well-being, encompassing physical, mental, social, and spiritual aspects, rather than solely focusing on disease or medical treatment. It considers the interconnectedness of multiple dimensions and the influence of social, cultural, and environmental factors on health outcomes.