

2010

# PRACTICE ANALYSIS OF CHIROPRACTIC

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





# PRACTICE ANALYSIS of Chiropractic 2010

*A project report, survey analysis, and summary  
of the practice of chiropractic within the United States*

*Produced by the*

**National Board of Chiropractic Examiners**

901 54th Avenue, Greeley Colorado

(970) 356-9100

[www.nbce.org](http://www.nbce.org)

**May 2010**



## **Editorial Staff**

Mark G. Christensen, Ph.D., *Project Director, Author and Editor*

Martin W. Kollasch, D.C., M.B.A., *Co-author and Assistant Editor*

John K. Hyland, D.C., M.P.H., *Co-author and Assistant Editor*

Anthony L. Rosner, Ph.D., LL.D. (Hon.), *Researcher and Contributing Writer*

Jeannette M. Johnson, *Production Coordinator*

Alison A. Day, M.S., *Final Production*

James zumBrunnen, M.S., Colorado State University, *Statistical Support*

### **Library of Congress Cataloging-in-Publication Data**

Christensen, Mark G., Kollasch, Martin W., and Hyland, John K.

Practice Analysis of Chiropractic 2010

A project report, survey analysis, and summary of chiropractic practice in the United States.

Includes bibliographical references and index.

ISBN 978-0-9844740-0-4

©2010 National Board of Chiropractic Examiners, All Rights Reserved.

No portion of this book may be reproduced in any manner without prior written approval from the National Board of Chiropractic Examiners.

# Acknowledgements

The National Board of Chiropractic Examiners (NBCE) wishes to express appreciation to Mark Christensen, Ph.D., the editorial staff, and members of the NBCE Steering Committee who helped guide the NBCE *Practice Analysis of Chiropractic 2010* project from its inception. The NBCE would also like to acknowledge the significant contributions of Paul D. Townsend, D.C., for his assistance in developing the initial survey form and subsequent forms. Appreciation is also extended to the more than 2,701 chiropractors who responded to the final Survey of Chiropractic Practice.

In addition, thanks are expressed to Sandi Wakeman for her role in obtaining the state lists of licensed chiropractors, carefully refining the lists to exclude those not residing in each state, tracking the written survey responses, scanning the written surveys to enable machine scoring, and various other follow-up assistance. The NBCE also extends thanks to Jeannette Johnson for her role in coordinating the follow-up telephone campaign conducted from the NBCE office and for her assistance with the writers at various stages of the production of the manuscript.

The NBCE recognizes Tony Golobic for his computer assistance in placing the survey on the internet, tracking survey completion, and compiling the final survey responses. In addition, gratitude is expressed to Joanne F. Monath for her assistance in coordinating the follow-up telephone campaign conducted by the professional telephone service.

To all of you we owe a debt of gratitude. Thank you.

A handwritten signature in black ink that reads "Vernon R. Temple D.C." The signature is written in a cursive style with a large initial 'V'.

Vernon R. Temple, D.C., President  
National Board of Chiropractic Examiners

*This publication is presented on behalf of*

## **The National Board of Chiropractic Examiners**

### **Officers and Board of Directors**

Vernon R. Temple, D.C., *President*

N. Edwin Weathersby, D.C., *Vice President*

Theodore J. Scott, D.C., *Treasurer*

Richard L. Cole, D.C., *Secretary*

Donna L. Craft, D.C.

Robin R. Lecy, D.C.

Paul Morin, D.C.

Lawrence O'Connor, D.C.

Norman E. Ouzts, Jr., D.C.

Daniel Saint-Germain, D.C.

Oliver R. Smith, Jr., D.C.

Horace C. Elliott, *Executive Vice President*

### **Practice Analysis Steering Committee**

Oliver Smith, D.C., *Chair*

Robin Lecy, D.C.

Lawrence O'Connor, D.C.

Norman Ouzts, Jr., D.C.

# Table of Contents

## Chapter 1

<b><i>The Chiropractic Profession.....</i></b>	<b><i>1</i></b>
In the United States.....	1
Outside the United States .....	1
Principles of Chiropractic.....	3
Chiropractic Case Management .....	4
Chiropractic Requisites.....	5
Education .....	6
Specialization .....	8
National Board Exams.....	9
State or National Licensure/Registration.....	10
Reimbursement for Chiropractic Services .....	11
Sports Chiropractic.....	12
Conclusions .....	12

## Chapter 2

<b><i>Chiropractic Research .....</i></b>	<b><i>13</i></b>
Effectiveness Research.....	14
For Back Pain.....	14
<i>Practice-Based Research .....</i>	<i>14</i>
<i>Dose-Response Studies.....</i>	<i>14</i>
<i>Comparison with Other Treatments .....</i>	<i>14</i>
<i>Lumbar Disc Herniation.....</i>	<i>15</i>
<i>Pediatric Low Back Pain .....</i>	<i>15</i>
<i>Systematic Reviews.....</i>	<i>15</i>
For Neck Pain .....	16
<i>Practice-Based and Comparison Research .....</i>	<i>16</i>
<i>Whiplash Disorder.....</i>	<i>17</i>
<i>Systematic Reviews.....</i>	<i>17</i>

For Headaches .....	17
<i>Tension and Cervicogenic Headaches</i> .....	17
<i>Migraine and Vascular Headaches</i> .....	18
<i>Pediatric Headaches</i> .....	18
<i>Systematic Reviews</i> .....	19
For the Extremities.....	19
For Non-Musculoskeletal Conditions .....	19
<i>Infant Colic, Bed-Wetting, Ear Inflammation, and Asthma</i> .....	20
<i>Painful Menses, High Blood Pressure, and Heart Rate Variability</i> .....	20
<i>Central Nervous System Function</i> .....	21
<i>Systematic Reviews</i> .....	21
For Prevention and Wellness .....	22
Safety and Satisfaction Research.....	22
A Safe Intervention .....	22
<i>Side Effects and Risks</i> .....	23
<i>Cerebrovascular Accidents</i> .....	23
Patient Satisfaction Studies .....	24
Cost-Effectiveness Research .....	25
Workers' Compensation Data.....	25
Insurance Company Data .....	25
Economist Evaluations .....	26
Basic Science Research.....	27
Anatomy and Biomechanics .....	27
Neurology.....	28
Hormones and Inflammation .....	28
Conclusions .....	29

### **Chapter 3**

<b><i>Standards for Occupational Performance</i>.....</b>	<b>31</b>
Registration, Licensure, and Certification.....	31
Licensure Requirements.....	32
National Testing Organizations .....	32
The Inspector General Report.....	32
Standards of Testing .....	33



Definition of Terms .....	33
Validity.....	33
Reliability.....	34
Setting Cut Scores or Passing Scores .....	35
<i>Cut Scores Effect on State Boards</i> .....	35
<i>Test Validity</i> .....	36
<i>Test Reliability</i> .....	36
Summary.....	37

## **Chapter 4**

<b><i>Planning and Developing the Survey of Chiropractic Practice</i> .....</b>	<b>39</b>
Job Inventory .....	39
Rating Scales .....	40
Components of a Practice Analysis.....	41
Practice Analysis Steering Committee.....	42
Practice Analysis Advisory Committee .....	42
Practice Analysis Workshop.....	43
Practice Analysis Workshop Results.....	43
Review of Literature.....	44
The Field Test.....	44
The Survey of Chiropractic Practice (2003 and 2009) .....	45
The Collection and Analysis of the Survey Data (2009).....	45
The Publication of the <i>Practice Analysis of Chiropractic 2010</i> .....	<b>45</b>

## **Chapter 5**

<b><i>Administering the Survey of Chiropractic Practice</i> .....</b>	<b>47</b>
Survey Results by State.....	47
Defining and Calculating Standard Error .....	47
Selection Process .....	48
Pre-Notification.....	48
Distributing and Tracking the Survey .....	49
Increasing the Rate of Response.....	49
Identifying Active Full-time Practitioners.....	50
Conducting the Survey of Non-Respondents.....	50

Survey Response Results .....	50
Determining Percentages from Responses on 5-point Scales .....	50
The Weighting Factor.....	50
Sampling Design and Response Rate by State.....	52

## **Chapter 6**

<b><i>Overview of Survey Responses.....</i></b>	<b>57</b>
The “Typical” Chiropractor .....	57
Routine Activities and Procedures.....	58
Patient Conditions .....	59
Frequency of Professional Functions .....	63
Importance of Professional Functions .....	65
Treatment Procedures .....	67
Reimbursement Categories, Managed Care, and Referral .....	68
The “Typical” Patient.....	69

## **Chapter 7**

<b><i>The Chiropractic Practitioner.....</i></b>	<b>73</b>
Personal Demographics .....	75
Gender .....	75
Ethnicity .....	76
Level of Non-Chiropractic Education .....	76
Specialization .....	77
Chiropractic Colleges Represented.....	78
The Chiropractic Work Environment .....	79
Hospital and Military Practices.....	79
Practice Location by Community Size and Use of Radiography .....	79
Patient Workload, Gender, and Ages.....	80
Referrals.....	83
Experience and Orientation .....	86
Years in Practice .....	86
Clinical Orientation .....	86
Pre-licensure .....	87

# List of Tables

## Chapter 1

*The Chiropractic Profession.....1*

Table 1.1 Countries in Which Chiropractic is Recognized as a Health Profession.....2-3

## Chapter 5

*Administering the Survey of Chiropractic Practice .....47*

Table 5.1 Response by State ..... 53-56

## Chapter 6

*Overview of Survey Responses.....57*

Table 6.1 Years in Practice..... 57

Table 6.2 Patient Conditions (from 2003 survey) ..... 59-63

Table 6.3 Frequency of Professional Functions..... 63-65

Table 6.4 Importance of Professional Functions..... 66-67

## Chapter 7

*The Chiropractic Practitioner..... 73*

Table 7.1 Ethnic Origin ..... 76

Table 7.2 Chiropractic Colleges Represented..... 78-79

Table 7.3 Years in Practice..... 86

Table 7.4 Duties of Chiropractic Assistants Who Provide Patient Care ..... 93-94

## Chapter 8

*Patient Conditions .....95*

Table 8.1 Neurological Conditions ..... 99-100

Table 8.2 Articular Joint Conditions..... 101-102

Table 8.3 Muscular Conditions ..... 103

Table 8.4 Skeletal Conditions..... 104

Table 8.5 Respiratory Conditions..... 105

# List of Figures

## Chapter 1

### *The Chiropractic Profession.....1*

Figure 1.1 Steps Leading to Chiropractic Practice ..... 6

## Chapter 6

### *Overview of Survey Responses.....57*

Figure 6.1 Components of Chiropractic Practice (2009)..... 58

Figure 6.2 Reimbursement Categories (2003)..... 68

Figure 6.3 Number of Patients per Week (2009)..... 69

Figure 6.4 Patient Age (2009) ..... 70

Figure 6.5 Chief Complaints (2003) ..... 70

Figure 6.6 Etiology of Patient Conditions (2003) ..... 71

## Chapter 7

### *The Chiropractic Practitioner.....73*

Figure 7.1 Practice Hours per Week (1991) ..... 73

Figure 7.2 Practice Hours per Week (1998)..... 74

Figure 7.3 Practice Hours per Week (2003)..... 74

Figure 7.4 Practice Hours per Week (2009)..... 75

Figure 7.5 Practitioner Gender ..... 75

Figure 7.6 Non-chiropractic Education ..... 77

Figure 7.7 Number of Patients per Week (2009)..... 80

Figure 7.8 Patient Age (1991) ..... 81

Figure 7.9 Patient Age (1998) ..... 81

Figure 7.10 Patient Age (2003) ..... 82

Figure 7.11 Patient Age (2009) ..... 82

Figure 7.12 Frequency of Patient Referrals (1998) ..... 83

Figure 7.13 Frequency of Patient Referrals (2003) ..... 84

Figure 7.14 Frequency of Patient Referrals (2009) ..... 85

<b>Figure 7.15</b> Pre-licensure Clinical Training.....	87
<b>Figure 7.16</b> Post-licensure Training.....	88
<b>Figure 7.17</b> Hours of Continuing Education Last Year (1998) .....	89
<b>Figure 7.18</b> Hours of Continuing Education Last Year (2003) .....	90
<b>Figure 7.19</b> Hours of Continuing Education Last Year (2009) .....	90
<b>Figure 7.20</b> Components of Chiropractic Practice (1998) .....	91
<b>Figure 7.21</b> Components of Chiropractic Practice (2003) .....	92
<b>Figure 7.22</b> Components of Chiropractic Practice (2009) .....	92

## **Chapter 8**

<b><i>Patient Conditions</i></b> .....	<b>95</b>
<b>Figure 8.1</b> Chief Complaints (1998) .....	96
<b>Figure 8.2</b> Chief Complaints (2003) .....	96
<b>Figure 8.3</b> Etiology of Patient Conditions (1998) .....	97
<b>Figure 8.4</b> Etiology of Patient Conditions (2003) .....	97
<b>Figure 8.5</b> Percentage of Chiropractors Who Made a Non-subluxation-based Diagnosis for the Majority of Their Patients with Each Condition.....	118-119

## **Chapter 9**

<b><i>Professional Functions and Treatment Procedures</i></b> .....	<b>121</b>
<b>Figure 9.1</b> Rating Scales Used in Assessing the Frequency, Risk, and Importance of Chiropractic Functions .....	122

## **Appendix A**

<b><i>Association of Chiropractic Colleges (ACC)</i></b> .....	<b>137</b>
<b>Figure A.1</b> The ACC Chiropractic Paradigm .....	137
<b>Figure A.2</b> ACC Chiropractic Scope and Practice.....	140

## **Glossary**

<b><i>Glossary</i></b> .....	<b>213</b>
<b>Glossary Figure 1</b> Range of Motion .....	229

<b>Table 8.6</b> Gastrointestinal Conditions.....	106
<b>Table 8.7</b> Integument Conditions.....	107
<b>Table 8.8</b> Renal/Urological Conditions.....	108
<b>Table 8.9</b> Cardiovascular Conditions.....	109
<b>Table 8.10</b> Endocrine/Metabolic Conditions.....	110
<b>Table 8.11</b> Sexually Transmitted Diseases.....	111
<b>Table 8.12</b> Eye, Ear, Nose, and Throat Conditions.....	112
<b>Table 8.13</b> Hematological/Lymphatic Conditions.....	113
<b>Table 8.14</b> Female Reproductive Conditions.....	114
<b>Table 8.15</b> Male Reproductive Conditions.....	115
<b>Table 8.16</b> Childhood Disorders.....	116
<b>Table 8.17</b> Miscellaneous Conditions.....	117

## **Chapter 9**

<b><i>Professional Functions and Treatment Procedures.....</i></b>	<b>121</b>
<b>Table 9.1</b> Frequency, Risk, and Importance of Professional Functions by Question Order.....	123-126
<b>Table 9.2</b> Frequency, Risk, and Importance of Professional Functions by Importance Order.....	129-132
<b>Table 9.3</b> Percentage of Chiropractors Utilizing Passive Adjunctive Procedures.....	134
<b>Table 9.4</b> Percentage of Chiropractors Utilizing Active Adjunctive Procedures.....	135
<b>Table 9.5</b> Percentage of Chiropractors Utilizing Health Promotion and Wellness Care Procedures.....	135

Post-licensure.....	88
Continuing Education Hours .....	89
Components of Chiropractic Practice .....	91
Survey Concerning Chiropractic Assistants .....	93

## **Chapter 8**

<b><i>Patient Conditions</i></b> .....	<b>95</b>
Introduction .....	95
Chief Complaint.....	95
Primary Etiology.....	95
Conditions .....	98
Neurological Conditions .....	98
<i>Discussion</i> .....	99
Articular/Joint Conditions.....	100
<i>Discussion</i> .....	101
Muscular Conditions .....	103
<i>Discussion</i> .....	103
Skeletal Conditions .....	104
<i>Discussion</i> .....	104
Respiratory Conditions .....	105
<i>Discussion</i> .....	105
Gastrointestinal Conditions.....	106
<i>Discussion</i> .....	106
Integument Conditions .....	107
<i>Discussion</i> .....	107
Renal/Urological Conditions.....	108
<i>Discussion</i> .....	108
Cardiovascular Conditions .....	109
<i>Discussion</i> .....	109
Endocrine/Metabolic Conditions .....	110
<i>Discussion</i> .....	110
Sexually Transmitted Diseases .....	111
<i>Discussion</i> .....	111

Eye, Ear, Nose, and Throat Conditions.....	112
<i>Discussion</i> .....	112
Hematological/Lymphatic Conditions .....	113
<i>Discussion</i> .....	113
Female and Male Reproductive Conditions .....	114
<i>Discussion</i> .....	114
Childhood Disorders .....	116
<i>Discussion</i> .....	116
Miscellaneous Conditions.....	117
<i>Discussion</i> .....	117
Diagnosis of Conditions.....	118

## **Chapter 9**

<b><i>Professional Functions and Treatment Procedures</i></b> .....	<b>121</b>
Scales .....	121
Frequency and Risk Assessment of Professional Functions.....	122
Case History Functions .....	122
Physical and Orthopedic/Neurologic Examination Functions.....	122
Imaging, Laboratory, and Other Diagnostic Studies Functions .....	126
Diagnosis and Case Management Functions.....	127
Documentation and Communication Functions .....	127
Chiropractic Technique Functions .....	128
Importance of Professional Functions .....	128
Adjunctive Care .....	132
Passive Adjunctive Care .....	133
Active Adjunctive Care.....	133
Health Promotion/Wellness Care .....	133

## **Appendix A**

<b><i>Association of Chiropractic Colleges (ACC)</i></b> .....	<b>137</b>
--	------------

## **Appendix B**

<b><i>Pre-survey Postcard</i></b> .....	<b>143</b>
---	------------



**Appendix C**

*Survey Cover Letter*..... 145

**Appendix D**

*Survey of Chiropractic Practice 2003*..... 147

**Appendix E**

*Survey of Chiropractic Practice 2009*..... 163

**Appendix F**

*Survey Follow-up* ..... 177

**Appendix G**

*News Release*..... 181

**Appendix H**

*List of Survey Participants*..... 183

**Bibliography**

*Bibliography* ..... 197

**Glossary**

*Glossary*..... 213

**Index**

*Index*..... 233



## Preface

To ensure that the assessment of chiropractic students and doctors of chiropractic accurately represents what chiropractors do in practice, it is necessary to conduct a survey (a practice analysis) of chiropractors around the nation. The survey results also provide legislators, insurance representatives, educators, and the general public with an overview of chiropractic's growing importance and effectiveness as a healthcare profession.

This survey report contains data collected in 1991, 1998, 2003 and 2009 by the National Board of Chiropractic Examiners (NBCE). Contained herein are important survey findings that reveal practitioner and patient demographics, patient health issues, and treatment procedures common to the chiropractic profession nationwide. This book also contains recent reports of research demonstrating chiropractic's efficacy in the treatment of a wide variety of health concerns and provides descriptions and explanations of how this large-scale survey of U.S. chiropractors was conducted and reported.

Like the previous three job analyses conducted in 1991, 1998, and 2003, this most recent analysis presents the findings in a clear, organized format; such a presentation can only be achieved by the significant efforts of many people. These individuals include: the NBCE Practice Analysis Advisory and Steering Committees, private chiropractic practitioners, statisticians, editors, and NBCE staff members. Special thanks must also be given to the chiropractors who responded to the survey so that an accurate and representative picture of the profession might emerge.

A commitment to excellence by our nation's chiropractors and by the National Board of Chiropractic Examiners is a distinguishing mark of our profession and expands public awareness of the importance of chiropractic in this nation's healthcare system.



Horace C. Elliott, Executive Vice President  
National Board of Chiropractic Examiners



# Introduction

The chronology of tests and measurements can be traced to the beginning of recorded history. Early writings describe processes including rituals that gauged the knowledge, wisdom, physical endurance, or bravery of ancient peoples.

At one time or another, through one form or another, mankind has always devised a means of assessing the knowledge, skills, and abilities of those seeking to meet recognized standards. As society has become more complex and specialized, and as the consequences of assessment decisions have become more weighty with procedures and results increasingly scrutinized, strict guidelines for obtaining reliable and valid test results have emerged. Today, these guidelines are established and refined by individuals, testing organizations, and the United States government.

In its role as the national and international testing agency for the chiropractic profession, the National Board of Chiropractic Examiners adheres to recognized guidelines, which facilitate the preparation and administration of fair, uniform, and valid tests. Specifically, testing guidelines clearly state that, “Some form of job or practice analysis provides the primary factor for defining the content domain” (American Educational Research Association, American Psychological Association, National Council in Measurement in Education (1999), p. 161).

## **Organization of the Report**

While compiling data from the NBCE *Practice Analysis of Chiropractic*, the authors were committed to providing comprehensive and accurate documentation of every aspect of the practice analysis project. Repeatedly surfacing during the compilation process was the reminder that the readership of the report might well include individuals with varying degrees of familiarity with the fields of chiropractic and/or testing. This prevailing awareness affected the construction of the report in both content and format.

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

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

The information is often presented as a general overview, followed by a more detailed topical discussion presented chronologically. The editors have attempted to convey information through visual means where appropriate. A glossary of terms can also be found at the end of this report.

The first two chapters serve to familiarize the reader with the chiropractic profession and its practitioners, including the personal, educational, and professional criteria these individuals met in becoming *licensed practitioners of chiropractic*. Also presented is research documenting the efficacy of chiropractic health care.

Chapter 3 provides background information relative to the regulation of occupational licensing. Here, readers are given some general information concerning licensure and certification testing and some legal aspects that shape regulatory agency requirements.

In Chapter 4, we present the procedures necessary to reap maximum project validity. This chapter discusses organization, development, and the research protocols observed in the practice analysis project, from committees to field tests to the gathering of statistics and the design of the final survey.

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

Chapter 6 provides an overview of the respondent chiropractors and patient demographics. Included is a summary of conditions, treatments, and professional activities within chiropractic practice. The subsequent chapters provide a detailed breakdown of the characteristics of the “typical” chiropractic practitioner (Chapter 7) and the “typical” chiropractic patient, patient conditions and chiropractic management of those conditions (Chapter 8) as indicated by the survey response data.

The final chapter of the *Practice Analysis of Chiropractic 2010* report (Chapter 9) summarizes the response data relative to professional functions, knowledge, and treatment procedures performed by the practitioners participating in the survey.

The appendices include the relevant forms and correspondence, the 2003 and 2009 Surveys of Chiropractic Practice, and a listing of survey participants. Also included in the appendices are the American Chiropractic Colleges’ Chiropractic Paradigm and its Chiropractic Scope and Practice. The appendices are followed by a bibliography, a glossary of terms and an index.



Mark G. Christensen, Ph.D., Assistant Executive Vice President and Director of Testing  
National Board of Chiropractic Examiners