

# Introduction

**T**he National Certification Board for Therapeutic Massage and Bodywork (NCBTMB) “fosters high standards of ethical and professional practice in the delivery of services through a recognized credible credentialing program that assures the competency of practitioners of therapeutic massage and bodywork.”

To fulfill aspects of its educational and professional development mission, NCBTMB contracted with The Chauncey Group International® (Chauncey Group®) to conduct a job analysis study during 2001-2002 to ensure that a new entry-level therapeutic massage professional certification program will reflect the most important and current practices in the field.

The major purpose of the Therapeutic Massage Professional job analysis was to identify the tasks and knowledge/skills that are important for competent performance by therapeutic massage professionals. The development of a content valid entry-level examination for therapeutic massage professionals should be based on important tasks and knowledge/skills identified through the job analysis process. Another purpose of the job analysis was to identify important professional development needs and future trends in the profession.

This report describes the job analysis including the:

- rationale for conducting the job analysis;
- methods used to define job-related tasks and knowledge/skills;
- types of data analyses conducted and their results; and,
- recommended test specifications that will be used to develop the new entry-level therapeutic massage professional examination.

## ***Job Analysis and Adherence to Professional Standards.***

Job analysis refers to procedures designed to obtain descriptive information about the tasks performed on a job and/or the knowledge, skills, or abilities thought necessary to adequately perform those tasks. The specific type of job information collected for a job analysis is determined by the purpose for which the information will be used. For purposes of developing licensure and certification examinations, a job analysis should identify important tasks, knowledge, skills, and/or abilities.

The use of job analysis (also known as role delineation or practice analysis) to define the content domain is a critical component in establishing the content validity of licensure and certification examinations. Content validity refers to the extent to which the content covered by an examination overlaps with the important components (tasks, knowledge, skills, or abilities) of a job.

A well-designed job analysis should include the participation of a representative group of subject-matter experts who reflect the diversity within the job. Diversity refers to regional or job context factors and to subject-matter expert factors such as experience, gender, and race/ethnicity (Kuehn et al., 1990). Demonstration of content validity is accomplished through the judgments of subject-matter experts. The process is enhanced by the inclusion of large numbers of subject-matter experts who represent the diversity of the relevant areas of expertise.

*The Standards for Educational and Psychological Testing* (1999) (*The Standards*) is a comprehensive technical guide that provides criteria for the evaluation of tests, testing practices, and the effects of test use. It was developed jointly by the American Psychological Association (APA), the American Educational Research Association (AERA), and the National Council on Measurement in Education (NCME).

The guidelines presented in *The Standards*, by professional consensus, have come to define the necessary components of quality testing. As a consequence, a testing program that adheres to *The Standards* is more likely to be judged to be valid and defensible than one that does not.

As stated in Standard 14.14,

“The content domain to be covered by a credentialing test should be defined clearly and justified in terms of the importance of the content for credential-worthy performance in an occupation or profession. A rationale should be provided to support a claim that the knowledge or skills being assessed are required for credential-worthy performance in an occupation and are consistent with the purpose for which the licensing or certification program was instituted...Some form of job or practice analysis provides the primary basis for defining the content domain... (p.161)

The Therapeutic Massage Professional job analysis was designed to follow the guidelines presented in *The Standards* and to adhere to accepted professional practice.

# Methods

The job analysis study described in this report involved a multi-method approach that included individual and group meetings with subject-matter experts and a survey. This section of the report describes the activities conducted for the Therapeutic Massage Professional job analysis.

First, subject-matter experts identified the tasks and knowledge/skills they believe are important to the work performed by therapeutic massage and bodywork professionals. Then, a survey was developed and sent to therapeutic massage professionals in the United States.

The purpose of the survey was to obtain verification (or refutation) from a large number of knowledgeable professionals that the tasks and knowledge/skills identified by the subject-matter experts are important to their work.

Survey research functions as a “check and balance” on the judgments of the subject-matter experts and reduces the likelihood that unimportant areas will be considered in the development of the test specifications. The use of a survey is also an efficient and cost-effective method of obtaining input from large numbers of subject-matter experts and makes it possible for ratings to be analyzed separately by appropriate respondent subgroups.

The survey results provide information to guide the development of test specifications and content-valid certification examinations. What matters most is that a certification examination covers important knowledge/skills needed to perform job tasks.

The methodology used to conduct the Therapeutic Massage Professional job analysis study is described in detail below and included the following steps:

1. Conduct of a planning meeting.
2. Development of the survey.
3. Dissemination of the survey.
4. Analysis of the survey data.
5. Development of the test specifications for the entry-level therapeutic massage professional examination.

## **1. Conduct of a Planning Meeting.**

A project-planning meeting was conducted at Chauncey Group on June 13, 2002, to finalize plans for the job analysis study. Meeting participants included Paul Parker, Director of Certification at NCBTMB, and Chauncey Group staff responsible for the conduct of the job analysis.

The job analysis for entry-level therapeutic massage professionals was launched after the NCE-level job analysis had begun. During the planning meeting, it was confirmed that the tasks and knowledge/skills delineated at the March 2002 Task Force meeting for the NCE-level job analysis provided a useful foundation of information for developing the entry-level therapeutic massage professional job analysis survey content.

## **2. Development of the Therapeutic Massage Professional Survey.**

### ***Development of Survey Content***

The job analysis for entry-level therapeutic massage professionals was launched after the NCE-level job analysis had begun. During the planning meeting, it was confirmed that the tasks and knowledge/skills delineated through telephone interviews and at the March 2002 Task Force meeting for the NCE-level job analysis<sup>1</sup> provided a useful foundation of information for developing the entry-level therapeutic massage professional job analysis survey content.

A subcommittee of the Task Force that developed the NCE-level survey content participated in Web-based meetings facilitated by Chauncey Group. The purpose of the meetings was to refine the NCE level survey content to reflect only therapeutic massage tasks and knowledge/skills. In other words, the subcommittee revised or removed any tasks and knowledge/skills that focused on bodywork.

<sup>1</sup> Refer to the NCE-level job analysis report prepared by Chauncey Group (2002) for details about how the NCE-level survey content was developed.

## Survey Construction and Review Activities

**Survey Construction.** Chauncey Group then constructed the draft survey.

The following task and knowledge/skill domains were identified for inclusion on the survey:

<p>Task Domains:</p> <ol style="list-style-type: none"><li>1. Intake of Information</li><li>2. Assessment Procedures</li><li>3. Client Relations and Communications</li><li>4. Therapeutic Massage Application</li><li>5. Professional Standards, Ethics, Business and Legal Practices</li></ol> <p>Knowledge/Skill Domains:</p> <ol style="list-style-type: none"><li>1. General Knowledge of Body Systems</li><li>2. Anatomy, Physiology, and Kinesiology</li><li>3. Pathology</li><li>4. Therapeutic Massage Assessment</li><li>5. Therapeutic Massage Application: Theory, Methods, and Techniques</li><li>6. Professional Standards, Ethics, Business and Legal Practices</li></ol>
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### Survey Pilot Test

The purpose of the pilot test was to have therapeutic massage professionals, who had no previous involvement in the development of the survey, review the survey and offer suggestions for its improvement.

**Participants.** Therapeutic massage professionals were nominated by the Task Force Subcommittee to participate in the survey pilot test. (See Appendix A.)

**Conduct of the Pilot Study.** Pilot participants were asked to review the survey for clarity of wording, ease of use, and comprehensiveness of content coverage. Chauncey Group compiled the survey responses and reviewed them with NCBTMB staff and Task Force Subcommittee members. There were a few survey changes; that is, some task and knowledge/skill statements were revised or added based on the pilot test results.

### Final Version of the Therapeutic Massage Professional Survey

The final version of the survey consisted of five sections: Section 1: Tasks (64 statements); Section 2: Knowledge/Skills (147 statements); Section 3: Recommendations for Test Content; Section 4: Bodywork Approaches; Section 5: Background and General Information; and, Section 6: Comments.

In Section 1: Tasks, survey participants were asked to rate the statements using the Importance scale shown below:

How important is performance of the task to deliver safe and effective therapeutic massage sessions to clients?

**Response choices:** 0=Of no importance, 1=Of little importance, 2=Of moderate importance, 3=Important, 4=Very important.

In Section 2: Knowledge/Skills, survey participants were asked to rate the statements using the Importance scale shown below:

How important is the knowledge/skill to deliver safe and effective therapeutic massage sessions to clients?

**Response choices:** 0=Of no importance, 1=Of little importance, 2=Of moderate importance, 3=Important, 4=Very important.

For the tasks and knowledge statements, survey participants received the following instructions: “As you rate each task (or knowledge/skill), think about entry-level therapeutic massage professionals with less than two years of relevant experience.”

Survey participants were asked to indicate how well the statements covered the tasks and knowledge within each domain. Respondents made their judgments using a five-point rating scale (1=Very Poorly, 2=Poorly, 3=Adequately, 4=Well, 5=Very Well). A write-in area was provided for respondents to note any areas that were not covered within a specific domain.

In Section 3: Recommendations for Test Content, survey participants were asked to indicate the weight (emphasis) that each of the six knowledge domains should receive on the examination—General Knowledge of Body Systems; Anatomy, Physiology, and Kinesiology; Pathology; Therapeutic Massage Assessment; Therapeutic Massage Application: Theory, Methods, and Techniques; Professional Standards, Ethics, Business and Legal Practices.

This was accomplished by distributing 100 points across the six knowledge areas. These distributions represented the allocation of examination items survey participants believed should be devoted to each knowledge area.

In Section 4: Bodywork Approaches and Section 5: Background and General Information, survey participants were asked to provide demographic and background information about themselves and their professional activities. These items are used to describe the respondents and, as appropriate, to perform subgroup analyses.

In Section 6: Comments, survey participants were asked to respond to three questions.

1. What additional training and/or continuing education could you use to improve your performance as a therapeutic massage professional?
2. How do you expect your job as a therapeutic massage professional to change over the next few years? What tasks will be performed and what knowledge will be needed to meet changing job demands?
3. Other Comments: Make any other comments on the survey that come to mind.

### **3. Dissemination of the Therapeutic Massage Professional Survey.**

NCBTMB provided Chauncey Group with a current database of NCE-level certificants. Using the electronically transmitted database, Chauncey Group drew a sample of 2,335 NCE-level certificants based on the following criteria:

- Only NCEs in the United States were invited to complete the survey.
- The sample of survey participants per state matched the state profile of NCEs<sup>2</sup>.

In September 2002, Chauncey Group printed, assembled, and mailed the surveys to a total of 2,335 NCEs. Each survey packet included a cover letter provided by NCBTMB, a survey, and a postage-paid envelope for returning the completed survey to Chauncey Group.

On September 18, 2002, a survey completion reminder postcard was sent to participants. To enhance the response rate, the survey due date was extended from October 4, 2002, to October 15, 2002. A second survey completion reminder

was mailed to participants by Chauncey Group. The invitation, job analysis survey, and survey reminders are provided in Appendix C.

Upon receipt at Chauncey Group, surveys were opened and checked for completeness. Response rates were calculated and communicated to NCBTMB on an ongoing basis. Survey responses were entered into a database.

### **4. Analysis of the Therapeutic Massage Professional Survey Data.**

As previously discussed, the purpose of the survey was to identify the important tasks and knowledge/skills that relatively large numbers of therapeutic massage professionals judged to be relevant (verified as important) to their work.

These objectives are accomplished through an analysis of the mean importance ratings for tasks and knowledge. The derivation of test specifications from those statements verified as important by the surveyed professionals provides a substantial evidential basis for the content validity (content relevance) of credentialing examinations.

Based on information obtained from the survey, data analyses by respondent subgroups (e.g., practice setting, years in the therapeutic massage/bodywork profession, geographic region, gender)<sup>3</sup> are possible when sample size permits.

A subgroup category is required to have at least 30 respondents to be included in the mean analyses. This is a necessary condition to ensure that the mean value based upon the sample of respondents is an accurate estimate of the corresponding population mean value.

The following quantitative and qualitative data analyses were conducted:

- Frequency distributions were computed for the items that appeared in the Bodywork Approaches and Background and General Information survey sections.

<sup>2</sup> The number of NCEs in a state was divided by the total number of NCEs in the United States. The resulting percentage was then multiplied by the total number of surveys that were disseminated. This number represented the number of surveys mailed within a state. Survey participants within each state were selected through a random selection process. The minimum number of surveys distributed within a state was 15.

<sup>3</sup> Gender subgroups are included in the analyses, when possible, because they represent protected "classes" under Title VII of the Civil Rights Act of 1964. An analysis of importance ratings by geographic region is consistent with the legal emphasis on addressing regional job variability in job analyses (Kuehn et al., 1990).

- Means, standard deviations, frequency distributions and confidence intervals were computed for each task and knowledge/skill statement.
- Means and standard deviations were computed for each content coverage question.
- Means and standard deviations were computed for the responses in the Recommendations for Test Content survey section.
- Write-in comments were summarized regarding: important tasks and/or knowledge/skills that respondents believed were not covered on the survey; additional training and/or continuing education that could be used to improve the respondent's performance; expectations about how their job in therapeutic massage will change over the next few years; and other comments about the survey.

### **Criterion for Interpretation of Mean Importance Ratings**

Since a major purpose of the survey is to ensure that only the most important tasks and knowledge statements are included in the development of test specifications, a criterion (cut point) for inclusion needs to be established.

A criterion that has been used in similar studies is a mean importance rating that represents the midpoint between moderately important and important. For the importance rating scale used across many studies, the value of this criterion is 2.50.

It is believed that this criterion is consistent with the intent of content validity, which is to measure only important knowledge in the assessment instrument. Therefore, for the Therapeutic Massage Professional job analysis, Chauncey Group recommended the value of this criterion should be set at 2.50.

The task and knowledge/skill statements were placed into one of three categories—Pass, Borderline, or Fail—based on their mean importance ratings. Statements that received a mean rating at or above 2.50 (Pass Category)

are considered eligible for inclusion in the development of test specifications.

In contrast, the Fail Category contains those statements whose mean ratings are less than 2.40. It is recommended that statements in the Fail Category be excluded from consideration in the test specifications.

The remaining category, Borderline, contains those statements whose mean ratings are between 2.40 and 2.49. The Borderline Category is included to provide a point of discussion for the Test Specifications Committee to determine if the statement(s) warrant(s) inclusion in the test specifications.

If the Test Specifications Committee believes that a statement rated below 2.50 should be included in the specifications and can provide *compelling written rationales*, those statements may be considered for inclusion.

### **5. Development of Test Specifications for the new Entry-Level Therapeutic Massage Professional Examination.**

A meeting facilitated by Chauncey Group staff was conducted on November 11-12, 2002, in Princeton, NJ. The purpose of the meeting was to develop the Entry-level Therapeutic Massage Professional Examination test plan based on the job analysis results.

#### **Test Specifications Meeting Participants**

A representative group of 11 therapeutic massage professionals and NCBTMB staff attended the meeting. (See Appendix A.) A few of the participants attended the Task Force meeting in March 2002. The continued involvement of a few subject-matter experts provided continuity across the different steps of the job analysis study.

### **Conduct of the Test Specifications Meeting**

Prior to the meeting, Chauncey Group sent participants a mailing that included a cover memorandum, a meeting agenda, a list of participants, and a copy of the Therapeutic Massage Professional job analysis survey.

The focus of the meeting was to:

- review the conceptual frameworks developed through the survey (the task and knowledge domains);
- identify the tasks and knowledge/skill statements that are important for inclusion on a new entry-level therapeutic massage professional examination;
- create a linking of task and knowledge statements. This is done to ensure that each knowledge/skill tested is necessary for competent performance of important tasks; and,
- establish the percentage test weights for each knowledge domain on the new entry-level therapeutic massage professional examination. These percentage test weights are used to guide examination development activities.

# Results

## **Survey Response Rate.**

As shown in Table 1, of the 2,335 surveys that were disseminated, a total of 511 (22.6%) were returned completed.

No. of Surveys Sent	No. of Surveys Returned Not Completed	Survey Base Rate	No. of Surveys Completed	Survey Return Rate
2,335	77	2,258	511	22.6%

## **Top Five Therapeutic Massage Approaches**

According to the most frequently occurring responses, the top five therapeutic massage approaches that best describe their work are: Swedish massage, deep connective tissue massage, myofascial release, neuromuscular therapy, and trigger point therapy.

## **Therapeutic Massage Approaches in Which Survey Respondents Are Credentialed**

The top ten areas in which survey respondents reported holding a credential (certification, license, and/or registration) are: Swedish massage, deep connective tissue massage, myofascial release, reflexology, sports massage, neuromuscular therapy, Reiki, trigger point therapy, and seated massage.

## **Practice Setting**

Slightly under one half of the respondents reported that they work in private practice in a clinic/office (26.2%) or private practice in home (20.4%). These two categories represent the most frequently selected response categories.

## **Years in Profession**

Most of the respondents (81.4%) reported they have worked in the therapeutic massage profession for less than nine years. The most frequent response was one to three years.

About one half of the respondents have been certified through the NCE since 2000. The other respondents reported that they have been certified through NCE since 1990.

## **Practice Regulations**

Over 90.0% of respondents reported that state licensing/certification and/or county or city licensing affects their practice.

## **Geographic Location**

Most respondents indicated that they work in an urban (36.0%) or suburban (36.6%) setting. The majority of respondents reported that they work in the eastern region of the United States [Mid-Atlantic (19.4%), Southeastern (23.5%), Northeast (13.5%)], the Great Lakes region (12.3%), or the Pacific (11.9%) region.

## **Supervising Others/Teaching**

The majority neither supervise employees (91.6%) nor teach therapeutic massage therapy/bodywork (86.1%).

## **Education, Therapeutic Massage Training, and Continuing Professional Education**

A majority of the respondents reported that they hold a bachelor's degree (25.6%), an Associate's degree (12.1%), or have completed some college (22.7%).

Most respondents (95.5%) reported that were initially trained in a formal school program. For 88.3% of the respondents, their therapeutic massage training program ranged from 500 to 1,000 hours or more. Few respondents reported having received less than 500 hours of training. A similar percentage of respondents indicated that initial therapeutic massage training should range from 500 to 1,000 hours or more.

About two-thirds of the respondents reported that since beginning professional practice they have completed 199 or fewer hours of additional formal training or continuing professional education. In contrast, one-third of the respondents reported that they received between 200 to 1,000 hours or more of additional formal training or continuing professional education.

#### ***Current Practice Information***

For 94.7% of the respondents, the length of an average session ranges from 45 to 90 minutes. For 81.0% of the respondents, the number of client sessions performed in an average week ranges from 6 to 20.

The client base is predominantly female. A majority of the respondents (66.5%) indicated that their client base is female (defined as between 51% to 100% of clients seen). In contrast, only 13.7% of the respondents indicated that their client base is male (again, defined as between 51% to 100% of clients seen).

Respondents indicated that their client populations tend to include adults, geriatric, and pregnant women (97.1%, 55.8% and 40.7% of respondents, respectively).

About 80.0% of the respondents reported that their annual income from therapeutic massage during 2001 was less than \$30,000.

#### ***Professional Organizations***

A substantial percentage of the respondents reported that they are members of the American Massage Therapy Association (AMTA) (52.5%) and/or the American Bodywork and Massage Professionals (ABMP) (22.3%).

#### ***Self-Description***

By gender, more females participated in the survey (82.4%) than males (16.2%). The majority of survey respondents reported they are white (89.0%).

**Task and Knowledge/Skill Ratings by Overall Group of Respondents.**

**Tasks**

As summarized in Table 2 below, the overall group of respondents rated all of the tasks important (mean at or above 2.50) for competent performance by therapeutic massage professionals. Therefore, all 64 tasks were placed in the Pass Category.

For each task, the confidence interval was calculated at the 95% confidence level. The results of the analysis provide supportive evidence that the sample means fall within the parameters of expected population means.

Means and standard deviations for the tasks included on the survey are provided in Appendix D.

<b>Definition of Pass, Borderline, and Fail Categories for Task and Knowledge/Skill Mean Ratings</b>	
	<u>Means</u>
Pass:	At or above 2.50
Borderline:	2.40 to 2.49
Fail:	Less than 2.40

**Table 2 Number of Task Statements by the Pass, Borderline, and Fail Categories**

Domain	Total No. of Task Statements	Number of Statements		
		Pass	B/L	Fail
1. Intake of Information	10	10	0	0
2. Assessment Procedures	13	13	0	0
3. Client Relations and Communications	19	19	0	0
4. Therapeutic Massage Application	5	5	0	0
5. Professional Standards, Ethics, Business and Legal Practices	17	17		
5A. Professional Standards and Ethics	12	12	0	0
5B. Business and Legal Practices	5	5	0	0
<i>Total</i>	<i>64</i>	<i>64</i>	<i>0</i>	<i>0</i>
<i>Percentage</i>	<i>--</i>	<i>100.0%</i>	<i>0.0%</i>	<i>0.0%</i>

### Knowledge/Skills

Means and standard deviations for the knowledge/skills included on the survey are presented in Appendix E. For each knowledge/skill, the confidence interval was calculated at the 95% confidence level. The results of the analysis provide supportive evidence that the sample means fall within the parameters of expected population means.

As summarized below in Table 3, a majority of the knowledge statements (94.6%) achieved mean ratings at or above 2.50 and were placed in the Pass Category.

Domain	Total No. of Knowledge/Skill Statements	Number of Statements		
		Pass	B/L	Fail
<b>1. General Knowledge of Body Systems</b>	33	33		
Anatomy (Structure)	11	11	0	0
Physiology (Function)	11	11	0	0
Pathology (Disease State)	11	11	0	0
<b>2. Anatomy, Physiology, and Kinesiology</b>	17	17		
2A. Anatomy (Includes Structure and/or Location)	10	10	0	0
2B. Physiology (Function)	2	2	0	0
2C. Kinesiology (Movement)	5	5	0	0
<b>3. Pathology</b>	17	17	0	0
<b>4. Therapeutic Massage Assessment</b>	18	18	0	0
<b>5. Therapeutic Massage Application: Theory, Methods, and Techniques</b>	44	36	2	6
5A. Theory	2	2	0	0
5B. Methods and Techniques	42	34	2	6
<b>6. Professional Standards, Ethics, Business and Legal Practices</b>	18	18	0	0
<i>Total</i>	<i>147</i>	<i>139</i>	<i>2</i>	<i>6</i>
<i>Percentage*</i>	<i>--</i>	<i>94.6%</i>	<i>1.4%</i>	<i>4.1%</i>

\* Note: Percentages do not total 100.0% due to rounding.

A few knowledge statements (1.4%) achieved mean ratings in the 2.40 to 2.49 range and were placed in the Borderline Category. These statements included:

**Domain 5: Therapeutic Massage Application:**

**B. Methods and Techniques**

Knowledge of/skill in:

- use of therapeutic massage tools
- Techniques/strokes: torquing

A total of 4.1% of the knowledge statements achieved mean ratings of less than 2.40 and were placed in the Fail Category. These statements included:

**Domain 5: Therapeutic Massage Application:**

**B. Methods and Techniques**

Knowledge of/skill in:

- Techniques/strokes: flicking, hair pulling, pinching
- aromatherapy
- spa techniques (e.g., salt glows, wraps)
- topical analgesics

**Subgroup Analysis of Task and Knowledge Ratings.**

**Index of Agreement**

The index of agreement is a measure of the extent to which subgroups of respondents (e.g., practice setting, years in profession, geographic region) agree on which tasks and knowledge/skills are important.<sup>4</sup>

Using the mean importance ratings for task and knowledge/skill statements, indices of agreement were computed:

- If the subgroup means are above the critical importance value (mean ratings at or above 2.50), then they are in agreement that the content is important.

- If the subgroup means are below the critical importance value (mean ratings less than 2.50), then the subgroups are in agreement that the content is considered less important.
- By contrast, if one subgroup's mean ratings are above the critical importance value (e.g., private practice in home) and another subgroup's means are below the critical importance value (e.g., resort/hotel/cruise ship), then the subgroups are in disagreement as to whether the content is important.

**Task and Knowledge Ratings by Subgroup**

There tended to be strong agreement among respondents regarding the importance level of the tasks and knowledge statements. Indices of agreement for tasks were very high, ranging from 0.96 to 1.0. For the knowledge statements, the indices of agreement were high, ranging from 0.85 to 1.0. (See Appendix F).

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<sup>4</sup> The index of agreement provides a method of computing the similarity in judgments between groups that is more tailored to the purpose of a job analysis than the correlation coefficient. Although the correlation coefficient measures the tendency toward agreement along the full range of possible ratings, the agreement index focuses on whether two groups agree that the content should (or should not) be included in an examination. As one of the major purposes of this job analysis is to identify appropriate test content, the agreement index provides a statistical method to address this question at the subgroup level. Furthermore, the agreement index requires only 30 respondents per subgroup for computation, whereas the correlation coefficient requires at least 100 respondents per subgroup to provide a reliable measure of agreement. An illustrative example for two groups shows how the index is computed. If two groups passed the same 120 knowledge areas and failed the same 2 knowledge areas (out of the 124 total knowledge areas in the survey), the consistency index would be computed as:  $Agreement = (120 + 2)/124 = 0.98$ .

### **Content Coverage Ratings.**

The survey participants were asked to indicate how well the statements within each of the task and knowledge/skill domains covered important aspects of that area. These responses provide an indication of the adequacy (comprehensiveness) of the content. The five-point rating scale included 1=Very Poorly, 2=Poorly, 3=Adequately, 4=Well, 5=Very Well.

The mean task and knowledge ratings are provided in Tables 4 and 5. For the task domains, the mean ratings ranged from 4.19 to 4.43. The mean ratings across the knowledge/skill areas ranged from 4.24 to 4.38. This supports the notion that the tasks and knowledge/skills were comprehensive and well covered on the survey.

In addition to the five-point rating scale, respondents were asked to indicate any tasks or knowledge that were not included on the survey. An analysis of these responses showed that there were no omissions.

**Table 4 Mean Ratings and Standard Deviations of Task Content Coverage**

Domain	Mean	SD
1. Intake of Information	4.19	0.77
2. Assessment Procedures	4.29	0.72
3. Client Relations and Communications	4.41	0.68
4. Therapeutic Massage Application	4.25	0.79
5. Professional Standards, Ethics, Business and Legal Practices	4.43	0.74

**Table 5 Mean Ratings and Standard Deviations of Knowledge/Skill Content Coverage**

Domain	Mean	SD
1. General Knowledge of Body Systems	4.38	0.74
2. Anatomy, Physiology, and Kinesiology	4.33	0.72
3. Pathology	4.24	0.78
4. Therapeutic Massage Assessment	4.27	0.74
5. Therapeutic Massage Application: Theory, Methods and Techniques	4.33	0.77
6. Professional Standards, Ethics, Business and Legal Practices	4.38	0.72

**Certification Examination Content.**

In Section 3 of the survey, Recommendations for Test Content, participants were asked the following question: "If a new examination contains 100 questions, how many questions should be included in each topic area?" This information was used by the Test Specifications Committee as an aid in making decisions about how much emphasis the content areas should receive in the test content outline.

The mean weights across all survey respondents are presented in Table 6. Survey respondents gave the highest content weighting to Anatomy, Physiology, and Kinesiology (23.3%); whereas, Professional Standards, Ethics, Business and Legal Practices received the lowest content weighting (11.8%).

**Table 6 Mean Content Weights from Survey Respondents**

Domain	Mean Content Weight	S.D.
1. General Knowledge of Body Systems	16.1%	6.2%
2. Anatomy, Physiology, and Kinesiology	23.3%	7.5%
3. Pathology	13.9%	5.4%
4. Therapeutic Massage Assessment	14.4%	5.5%
5. Therapeutic Massage Application: Theory, Methods and Techniques	20.5%	8.6%
6. Professional Standards, Ethics, Business and Legal Practices	11.8%	5.2%
<i>Total</i>	<i>100.0%</i>	

### **Write-In Comments.**

Survey respondents were given the opportunity to respond to three open-ended questions about their professional development needs, expected job changes, and general survey comments.

The write-in comments by individual respondents are provided in Appendix G. The most frequently occurring responses are summarized below for each group of respondents.

**1. *What additional training and/or continuing education could you use to improve your performance as a therapeutic massage professional?***

Respondents made a total of 564 comments about training/continuing education needs.

A total of 42.9% of the respondents' write-in comments were requests for certification in specific techniques (e.g., craniosacral, manual lymph drainage, reflexology, deep tissue massage, Thai massage, sports massage). Another 38.3% of the write-in comments were directed at the need for: more science training (e.g., anatomy, physiology, kinesiology, pathology of disease, nutrition, pharmacology); business courses (e.g., starting own business, marketing skills, insurance forms and billing, record keeping); and more continuing education classes at reasonable costs (e.g., refresher courses on the basics, conferences).

**2. *How do you expect your job as a therapeutic massage professional to change over the next few years? What tasks will be performed and what knowledge will be needed to meet changing job demands?***

Respondents submitted a total of 570 write-in comments about expected job changes. The majority of comments focused on: an increased need for business skills (24.0% of the comments); an anticipated increase in the amount of interaction with professionals in the medical field and a need for more medical knowledge (15.8% of the comments); more training (14% of the comments); and, an expectation that therapeutic massage professionals will need more specialized training to work with patients who have

## **Summary of Comments**

### **Training Needs:**

- Certification in specialty areas
- More science training
- Business courses
- More continuing education classes at reasonable costs

### **Expected Job Changes:**

- More business skills will be required by therapeutic massage professionals
- More advanced-level training will be needed
- More interaction with professionals in the medical field will occur
- More specialized training will be needed to work with patients who have complex injuries and/or chronic pain and to work with children, geriatric clients, and hospice patients.

complex injuries and/or chronic pain and to work with children, geriatric clients, and hospice patients (11.8% of the comments).

**3. *Other Comments: Make any other comments on the survey that come to mind.***

A total of 161 comments were made in response to the third question. Topics addressed covered a range of therapeutic massage issues related to certification, continuing education units (CEUs), attrition, certification, continuing education units, education, the NCE examination, insurance, licensing, the NCBTMB, the profession, and the survey.

In summary, the write-in comments provide NCBTMB with detailed information to guide professional development activities for therapeutic massage professionals.

# Test Specifications

**A** Test Specifications meeting was conducted to develop test plan recommendations based on the results of the job analysis. The methodology used to develop the test specifications included the following:

- Overview of the job analysis project and presentation of the results to the Test Specifications Committee
- Identification of the task and knowledge/skill statements to be included in the new entry-level therapeutic massage examination test specifications
- Development of the test content weights for the new entry-level therapeutic massage examination
- Linkage of task and knowledge/skill statements

## ***Overview of the Job Analysis Project and Presentation of the Results to the Test Specifications Committee.***

The first activity in the development of the test plan for the new entry-level therapeutic massage examination was to provide the Test Specifications Committee with an overview of the job analysis activities that were conducted and to present the results of the study.

## ***Identification of the Task and Knowledge/Skill Statements to Be Included in the New Entry-level Therapeutic Massage Examination Test Specifications.***

The Test Specifications Committee reviewed the task and knowledge/skill statements to make final recommendations about the areas that should be included in the new entry-level therapeutic massage examination. (See Appendix H for a detailed summary of the Test Specifications Committee's recommendations.)

The survey results served as the primary source of information used by the Test Specifications Committee members to make test content decisions. Recommendations were based primarily on three criteria: 1) the mean task and knowledge/skill ratings; 2) the frequency distribution of ratings; and, 3) whether it is more

appropriate to cover the knowledge/skill on an examination or through training and/or continuing education initiatives.

The Test Specifications Committee recommended the inclusion of 64 tasks and 147 knowledge/skill areas in the new entry-level therapeutic massage examination.

## ***Tasks Recommended for Inclusion in the New Entry-level Therapeutic Massage Examination***

- All of the 64 tasks achieved mean ratings at or above 2.50 (Pass Category) and are included in the test specifications.

## ***Knowledge/Skills Recommended for Inclusion in the New Entry-level Therapeutic Massage Examination***

- A total of 139 of the 147 knowledge/skill areas that achieved mean ratings at or above 2.50 (Pass Category) were included in the test specifications.
- A total of seven knowledge/skill areas achieved mean ratings of less than 2.50 (Borderline and Fail Categories). However, an analysis of the frequency distribution of responses revealed that the majority of respondents rated them between moderately important and important. Therefore, the Committee believed it was appropriate to include these knowledge/skill areas in the test specifications.
- In Domain 4: Therapeutic Massage Assessment, one statement was added. According to the Test Specifications Committee, "pulse rate" is important knowledge to cover on an entry-level therapeutic massage examination.
- In Domain 4: Therapeutic Massage Assessment, one knowledge statement was revised for clarity: "lymphatic flow/edema" was changed to "lymphatic edema."

**Knowledge/Skills Not Recommended for Inclusion in the NCE**

- One knowledge/skill statement achieved a mean rating of less than 2.50 (Borderline or Fail Categories): spa techniques (e.g., salt glows, wraps). Therefore, it was not included in the test specifications.
- Two knowledge/skill statements with mean ratings at or above 2.50 were not recommended for inclusion on the test specifications: 1) techniques/strokes-unwinding was considered an advanced-level technique and 2) professional affiliations (e.g., ABMP, AMTA, AOBTA) was considered inappropriate for inclusion in an entry-level therapeutic massage examination.

**Development of Test Content Weights for the Entry-level Therapeutic Massage Examination.**

The Test Specifications Committee participated in an exercise that required each member to individually assign a percentage weight to each of the knowledge/skill domains and subdomains.

Weights were then entered into an Excel spreadsheet and shown on the screen for all to view. The Committee members were able to compare the test content weights derived from the survey responses to their own estimates. This produced a productive discussion among the Committee members regarding the optimal percentages for the examination.

Table 7 shows the recommended weights for each domain and subdomain. Anatomy, Physiology, and Kinesiology received the highest domain weighting (26.0%). In contrast, Professional Standards, Ethics, Business and Legal Practices received the lowest domain weighting (6.0%). The Committee recommended that the entry-level therapeutic massage examination contain 150 multiple-choice items.

**Table 7 Test Content Weights Recommended by the Test Specifications Committee for the Entry-Level Therapeutic Massage Examination**

Domain	Total No. Knowledge/Skills	Target Percentage Weight	Target	Number of Items Range	
				Minimum	Maximum
<b>1. General Knowledge of Body Systems</b>	<b>33</b>	<b>14.0%</b>	<b>21</b>	<b>19</b>	<b>23</b>
1A. Anatomy	11	6.0%	9	7	11
1B. Physiology	11	6.0%	9	7	11
1C. Pathology	11	2.0%	3	1	5
<b>2. Anatomy, Physiology, and Kinesiology</b>	<b>17</b>	<b>26.0%</b>	<b>39</b>	<b>37</b>	<b>41</b>
2A. Anatomy	10	10.0%	15	13	17
2B. Physiology	2	2.0%	3	1	5
2C. Kinesiology	5	14.0%	21	19	23
<b>3. Pathology</b>	<b>17</b>	<b>14.0%</b>	<b>21</b>	<b>19</b>	<b>23</b>
<b>4. Therapeutic Massage and Assessment</b>	<b>18</b>	<b>16.0%</b>	<b>24</b>	<b>22</b>	<b>26</b>
<b>5. Therapeutic Massage Application: Theory, Methods and Techniques</b>	<b>44</b>	<b>24.0%</b>	<b>36</b>	<b>34</b>	<b>38</b>
5A. Theory	2	8.0%	12	10	14
5B. Methods and Techniques	42	16.0%	24	22	26
<b>6. Professional Standards, Ethics, Business and Legal Practices</b>	<b>18</b>	<b>6.0%</b>	<b>9</b>	<b>7</b>	<b>11</b>
<b>Total</b>	<b>147</b>	<b>100%</b>	<b>150</b>	<b>138</b>	<b>162</b>

### ***Linkage of Task and Knowledge/Skill Statements***

Task and knowledge/skill linking verifies that each knowledge/skill area included on an examination is related to the competent performance of important tasks. As such, linking documents the content validity of the knowledge/skills included in the test specifications.

Linking does not require the production of an exhaustive listing; rather, task-knowledge/skill links are developed to ensure that each knowledge/skill is identified as being related to the performance of at least one, or in most cases several, important tasks.

Linking also provides guidance for item-writing activities. When item writers develop questions for specific knowledge/skill areas, they have a listing of tasks that relate to the knowledge/skill.

This provides context for developing examination questions, and assists the item writers in question design. The linked task and knowledge/skill statements are provided in Appendix I.

# Summary and Conclusions

**T**he Therapeutic Massage Professional job analysis study was conducted to: 1) identify important tasks and knowledge/skills; 2) create test specifications that may be used to develop new versions of the new entry-level therapeutic massage professional examination; 3) identify important professional development needs; and, 4) identify anticipated changes in the way work is performed.

The task and knowledge/skill statements were developed through an iterative process involving the combined efforts of NCBTMB, subject-matter experts, and Chauncey Group staff. The inventory was then put into survey format and subjected to verification/ refutation through the use of a survey of a large number of therapeutic massage and bodywork professionals. The survey participants were asked to rate the importance of specific task and knowledge/skill statements.

The results of the study support the following:

- The domains, tasks, and knowledge/skill statements delineated by the Task Force Committee received logical and appropriate support by survey respondents.
- The tasks and knowledge/skills verified as important provided the foundation of information from which to develop test specifications for the new entry-level therapeutic massage professional examination.

- Evidence was provided in this study that the comprehensiveness of the content within the task and knowledge/skill domains was adequately covered.
- A variety of professional development needs was identified as well as expected changes in job activities over the next few years. NCBTMB can use this information as it reviews and revises its continuing education initiatives.

In summary, this study took a multi-method approach to identifying the domains, tasks, and knowledge/skill areas important to the work performed by therapeutic massage professionals. The results of the study can be used to develop 1) the new entry-level therapeutic massage professional examination and 2) professional development initiatives.

# References

American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (1999). *The standards for educational and psychological testing*. Washington, DC: American Psychological Association.

Civil Rights Act of 1964, Title VII, 42 U. S. C. § 2000e.