

ROLE DELINEATION

for the

American Board for Certification

in Orthotics and Prosthetics, Inc.

CERTIFICATION EXAMINATION



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PREFACE

Role Delineation Study of the Entry-Level Orthotist and Prosthetist

In 1990 and 1991, the American Board for Certification in Orthotics and Prosthetics (ABC), working closely with Columbia Assessment Services, Inc. (CAS), conducted a study of the primary tasks performed by the entry-level orthotist and prosthetist. The primary purpose of this Role Delineation Study was to establish and validate appropriate content areas for the ABC Certification Program. The study focused on which tasks are performed on the job, how important each task is, how frequently the task is performed, and how critical the task is.

The study consisted of the following phases:

- A. Development or verification of the performance domains and tasks performed by entry-level orthotists and prosthetists by a role delineation panel of orthotists and prosthetists.
- B. Task ratings and determination of preliminary test specifications by the Role Delineation Panel. Review of knowledge and skills required to perform each task.
- C. Independent review and validation of the task ratings and test specifications by a national sample of orthotists and prosthetists.

INTRODUCTION

The process of role delineation is a critical component in the development of a certification examination. Just as a blueprint guides the construction of a building, a clear statement of the knowledge, skills and abilities required for professional competence provides a guide to determine the content and form of an examination.

Because examinations are so widely used to certify, license, and consequently employ individuals, psychometricians must follow certain logically sound and legally defensible procedures for developing examinations. These principles and procedures are outlined in a manual titled Standards for Educational and Psychological Testing published by the American Psychological Association. Columbia Assessment Services, Inc. adheres to these standards in developing testing programs for its clients.

One of the most critical of these standards is establishing that a test is valid. Simply stated, a test is valid if it measures what it purports to measure. Certification examinations typically assess whether a candidate has the knowledge required to function as a competent practitioner. Therefore the validity of a certification examination is established by linking the content of the test to the knowledge required to perform competently on the job. The process of establishing this linkage is called "content validation." It is the most commonly applied and accepted validation strategy in certification testing programs today.

Role delineation is the first step in this process of content validation. It provides a description of the tasks critical to competent job performance and also provides documentation, in the form of consensus among practicing professionals, that the description is accurate. Once the knowledge critical to job performance is established, it is linked to test content by the use of the role delineation to determine the numbers and types of items needed to tap important areas of job performance.

One of the major functions of a certification program is to protect the public from the incompetent practitioner. By selecting a certified professional, the public is given assurance that the practitioner has met certain criteria that are designed to insure that the professional is competent.

In keeping with the public protection rationale, certification examinations generally attempt to differentiate between the competent and the incompetent

practitioner, rather than the "good" practitioner and the "super" practitioner. Thus, the term "entry-level" is used in examination development questionnaires and materials.

PHASE I INITIAL DEVELOPMENT AND EVALUATION

The first step in studying the orthotist and prosthetist profession was the identification of the major areas or domains, the listing of task statements, and identification of knowledge and skill statements associated with each task. The following steps were undertaken to achieve Phase I:

A. A 12-member panel of subject matter experts along with a CAS's psychometrician were assembled. The panel members represented a variety of practice settings and were from different regions of the country. In November, 1990, this panel met to conduct a role delineation study of orthotists and prosthetists. It was determined that the following five major task areas (domains) were appropriate for the profession:

1. Clinical Assessment
2. Patient Management
3. Technical Implementation
4. Practice Management
5. Professional Responsibility

B. The panel then directed its attention to the listing of tasks performed by most orthotists and prosthetists. A list of knowledges and skills required to perform each task was then compiled. During and after the meeting, CAS staff members provided psychometric editing of the task, knowledge and skill statements.

C. The panel subsequently evaluated each domain and task as to its importance to an entry-level orthotist and prosthetist, its criticality (extent to which inability to perform the task would cause harm to the public), and the frequency with which the typical orthotist and prosthetist would perform the task. The rating scales utilized were as follows:

Importance: How important is each major performance domain to the performance of an entry-level orthotist or prosthetist?

- 1 = Not Important: Performance of tasks in this domain is of no importance at all to the job performance of the entry-level orthotist or prosthetist.

2 = Somewhat Important: Performance of tasks in this domain is of little importance to the job performance of the entry-level orthotist or prosthetist.

3 = Important: Performance of tasks in this domain is of moderate importance to the job performance of the entry-level orthotist or prosthetist.

4 = Very Important: Performance of tasks in this domain is of the utmost importance to the job performance of the entry-level orthotist or prosthetist.

5 = Extremely Important: Performance of tasks in this domain is absolutely essential to the job performance of the entry-level orthotist or prosthetist.

Criticality: The degree to which inability to perform entry-level tasks in each major performance domain would be seen as causing harm to the client.

1 = No Harm: Inability to perform tasks in this domain would have no consequence.

2 = Minimal Harm: Inability to perform tasks in this domain would lead to error with minimal consequence.

3 = Moderate Harm: Inability to perform tasks in this domain would lead to error with moderate consequence.

4 = A lot of Harm: Inability to perform tasks in this domain would lead to error with major consequence.

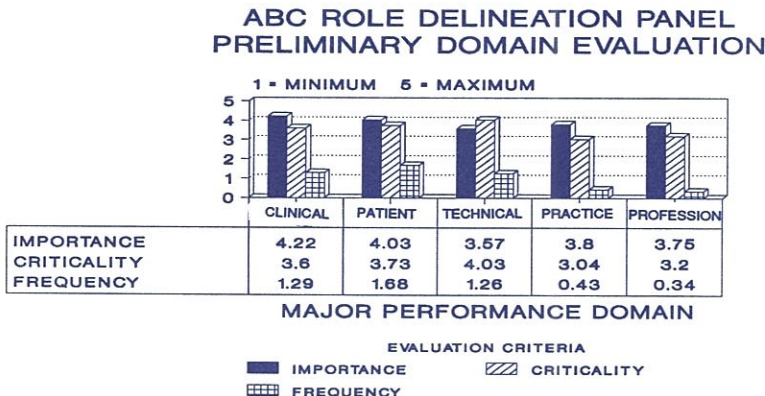
5 = Extreme Harm: Inability to perform tasks in this domain would definitely lead to error with severe critical consequence.

Frequency: The percentage of time in the work day during the year an entry-level orthotist and prosthetist performs tasks associated with each major performance domain.

Survey participants were given the list of the major job content domains developed by the Role Delineation Panel and asked to indicate the percentage of time in the work day that an entry-level orthotist and prosthetists would be expected to devote to the tasks underlying the domain.

For ease of comparison, frequency values have been converted from percentages to values from 1 to 5 whenever they appear on graphs along with importance and criticality values.

The results of the preliminary domain evaluation, based on the above rating scales, are summarized in the graph below.



ROLE DELINEATION PANEL NOV. 1990

PHASE II VALIDATION STUDY

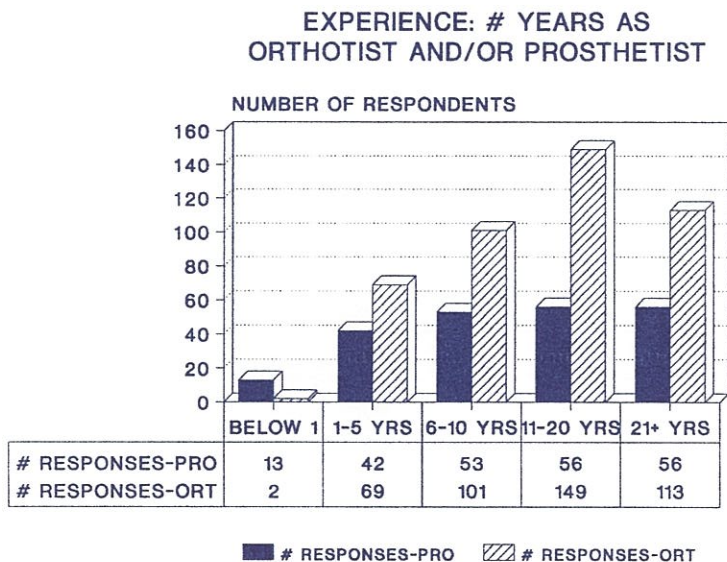
QUESTIONNAIRE DESIGN AND DISTRIBUTION

A 24-page questionnaire was developed by the CAS staff to enable orthotists and prosthetists to evaluate, validate, and provide feedback on the Role Delineation Panel's task list. In the first part of the questionnaire, biographical information was collected from the survey respondents in order to document their qualifications as subject matter experts. This information helped provide verification that our sample represented all major job functions. ABC provided a list of 2,738 certified orthotists and prosthetists. From this list, 1,500 were randomly selected. Of the 1,500 distributed, 504 were returned.

RESULTS

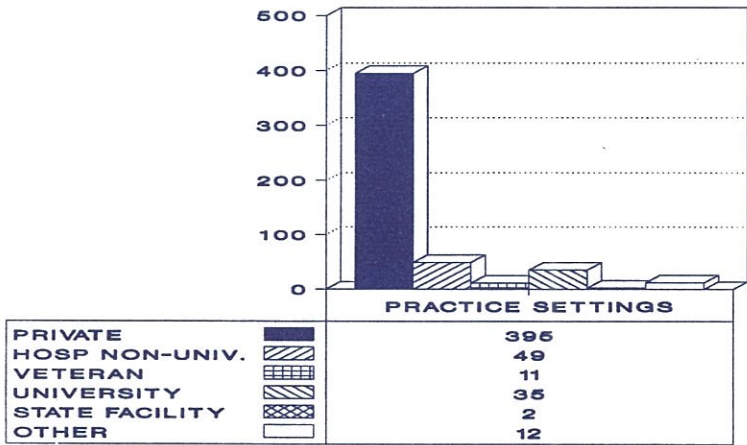
Sample Population Biographical Data

Summary data appears below for the respondent sample. The respondents represent 47 states in the U.S. and many levels of education and experience. The graphs reflect that the most common number of years of experience of the sample was 11-20 years for orthotists and 11+ years for prosthetists. Reflected in our graph is the fact that individuals with CPO certification possess experience as both orthotists and prosthetists. The most common education level is a Bachelor's degree. The respondent population is 91 percent male and 9 percent female.



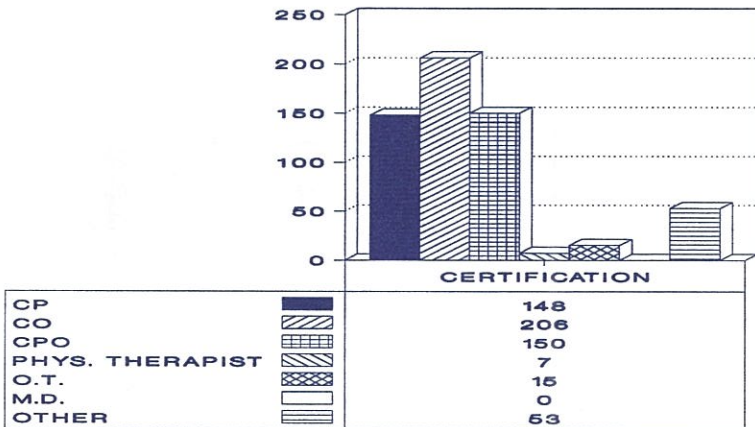
DATA FROM 1991 ROLE DELINEATION SURVEY

EMPLOYMENT SETTINGS OF ABC SURVEY RESPONDENTS



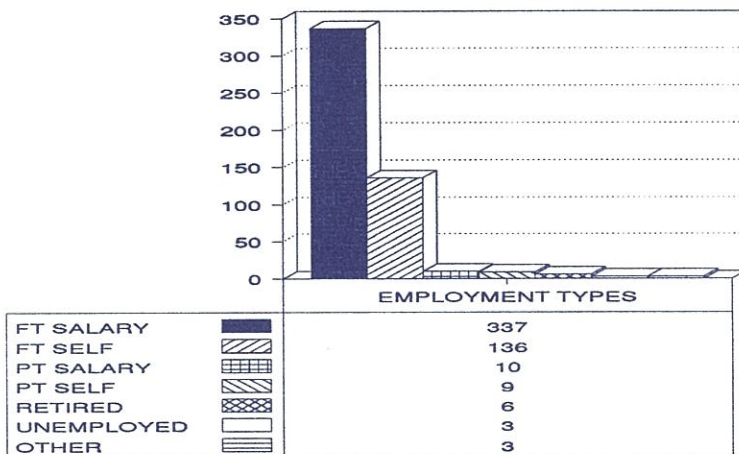
FROM 1991 ABC JOB ANALYSIS SURVEY

CERTIFICATIONS OF ABC SURVEY RESPONDENTS



FROM 1991 ABC JOB ANALYSIS SURVEY

EMPLOYMENT STATUS OF ABC SURVEY RESPONDENTS



FROM 1991 ABC JOB ANALYSIS SURVEY

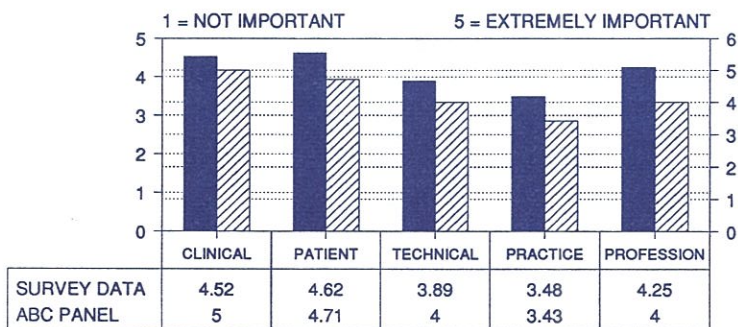
Evaluation of Performance Domains

Survey respondents were asked to evaluate each of four major performance domains as to importance, criticality, and amount of time spent on each domain. The survey data regarding evaluation of performance domains was analyzed in several different ways.

A. ABC Role Delineation Panel versus Survey Respondents

The evaluations of domains by the Role Delineation Panel were compared to the evaluations performed by the survey respondents, and results are summarized in the charts below. The results were mostly parallel, with two minor differences: (1) survey respondents believe that "Patient Management" is slightly more important and critical, and (2) the panel feels that "Clinical Assessment" is more important and critical. Also, the panel feels that "Technical Implementation" and "Practice" are more critical while the survey respondents feel that "Clinical Assessment" is more frequent. In solely frequency terms, the panel also believes that "Professional Responsibility" occurs less frequently than what the survey respondents believe.

ABC PANEL VS. SURVEY DATA DOMAIN EVALUATION - IMPORTANCE



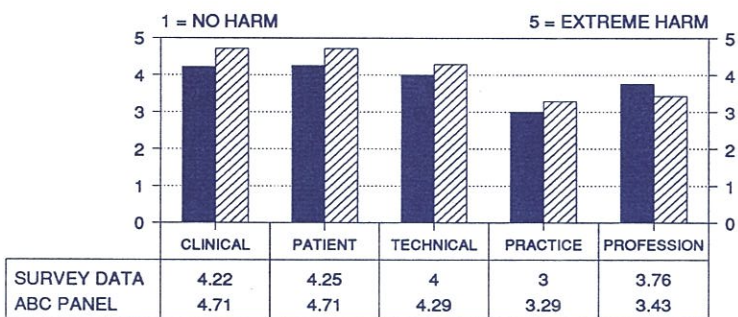
MAJOR PERFORMANCE DOMAIN

DATA SOURCE

SURVEY DATA
 ABC PANEL

ROLE DELINEATION PANEL VS. SURVEY-1991

ABC PANEL VS. SURVEY DATA DOMAIN EVALUATION - CRITICALITY



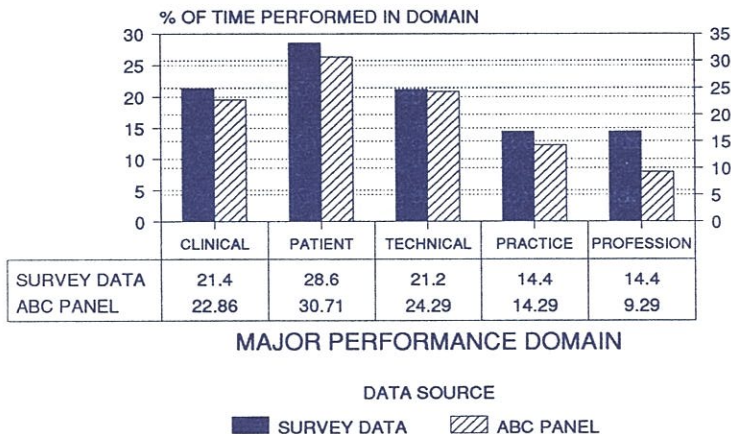
MAJOR PERFORMANCE DOMAIN

DATA SOURCE

SURVEY DATA
 ABC PANEL

ROLE DELINEATION PANEL VS. SURVEY-1991

ABC PANEL VS. SURVEY DATA DOMAIN EVALUATION - FREQUENCY



ROLE DELINEATION PANEL VS. SURVEY-1991

B. Analysis of Survey Responses

Next, the responses of all survey respondents were summarized. Then, the responses of all members of specific subgroups were analyzed so that their responses could be compared to the responses of all survey respondents. The subgroups are the different certifications, gender, setting, and geographic regions. In this manner, it is possible to determine if a subgroup has a markedly different view of the profession from that of the group of all respondents. One of the difficulties inherent in studying a profession in a national survey is that specialization occurs in the profession. Across the country, the job is performed in different practice settings (e.g., private clinics and hospitals) and with differing qualifications (e.g., years of experience, education). For example, if the orthotists and prosthetists with Bachelor degrees felt that the domain of "Technical Implementation" was more important than the "Patient Management" domain, then their view of the orthotist and prosthetist would be very much different from that of the majority of orthotists and prosthetists. Such a finding would indicate that we should not generalize the survey results.

Fortunately, this is not the case. In examining the charts on the following pages, we can see that the responses of the subgroups identified in the survey all seem to view the major domains in approximately the same way. The charts

detailing the evaluation of domain importance by different subgroups gives an indication of the homogeneity of response. With a few minor exceptions, all subgroups evaluated the domains with the same ranking. This provides support for generalizing from the survey results to the population of orthotists and prosthetists in general. Accordingly, examination specifications can be developed based on this data with little fear that the subgroups identified in this study would require different content or testing methodologies.

Summary of Results

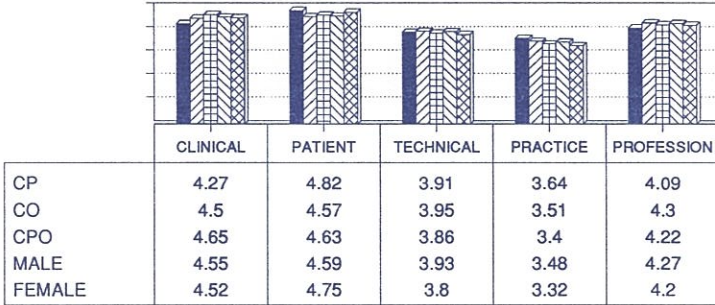
A review of the data presentations on the following page and the evaluation scales used by survey participants demonstrates that the respondents felt that all domains are important. The four domains have an average importance of at least 3.0, and 3 = "Important" on the evaluation scale. The "Patient Management" and "Clinical Assessment" domains are by far the most important (average importance of 4.6 and 4.5, respectively; 5 = "Extremely Important" on the evaluation scale), while "Professional Responsibility" and "Technical Implementation" are less important (average importance of 4.3 and 3.9 respectively). "Practice Management" is the least important of the five domains (average importance of 3.5).

The evaluation by survey respondents of the criticality of the domains is the same as that of the "Importance" evaluation in terms of rank ordering except for the Technical Implementation domain. In criticality terms this domain ranks third (average of 4.0) whereas in importance its rank is fourth. "Patient Management" is the most critical (average criticality of 4.3; 4 = "A Lot of Harm" on the evaluation scale), with the domain of "Clinical Assessment" slightly less critical (average criticality of 4.2). The domains of "Professional Responsibility" and "Practice Management" are the least critical, with an average criticality of 3.3 and 3.0 respectively (3 = "Moderate Harm" on the evaluation scale).

Frequency evaluations parallel the ranking of the evaluations of the domains by criticality. "Patient Management" has the most frequently performed tasks, as they are performed 29% of the time. "Clinical Assessment" and "Technical Implementation" tasks require 21% of an orthotist's and prosthetist's time. The "Practice Management" and "Professional Responsibility" domains are the least frequently performed (14%).

EVALUATION OF DOMAIN IMPORTANCE BY DIFFERENT GROUPS

0 = MINIMUM 5 = MAXIMUM



MAJOR PERFORMANCE DOMAIN

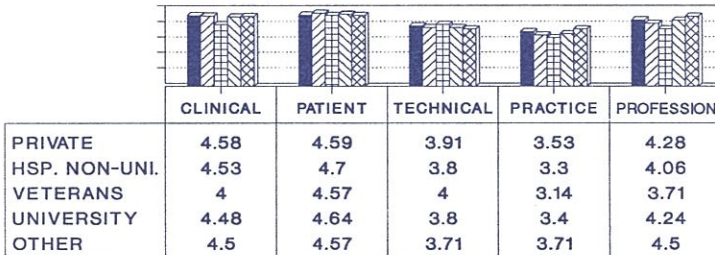
GROUP TYPE

CP
 CO
 CPO
 MALE
 FEMALE

ABC ROLE DELINEATION SURVEY-1991

EVALUATION OF DOMAIN IMPORTANCE BY PRACTICE SETTINGS

0 = MINIMUM 5 = MAXIMUM



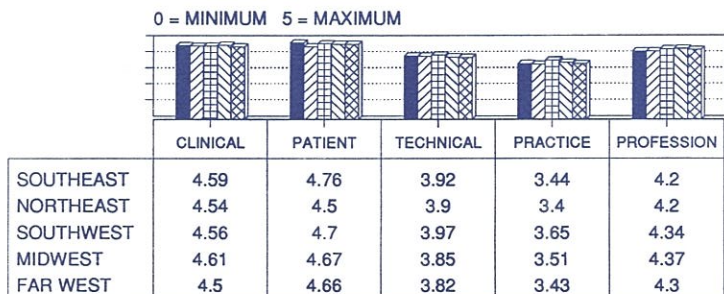
MAJOR PERFORMANCE DOMAIN

GROUP TYPE

PRIVATE
 HSP. NON-UNI.
 VETERANS
 UNIVERSITY
 OTHER

ABC ROLE DELINEATION SURVEY-1991

EVALUATION OF DOMAIN IMPORTANCE BY DIFFERENT GEOGRAPHIC REGIONS

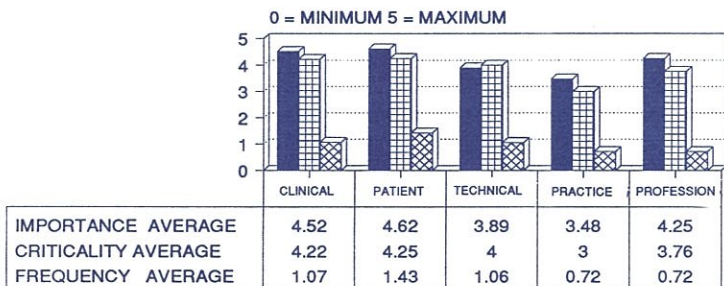


MAJOR PERFORMANCE DOMAIN

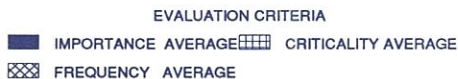


ABC ROLE DELINEATION SURVEY-1991

ABC SURVEY DATA EVALUATION OF MAJOR DOMAINS



MAJOR PERFORMANCE DOMAIN



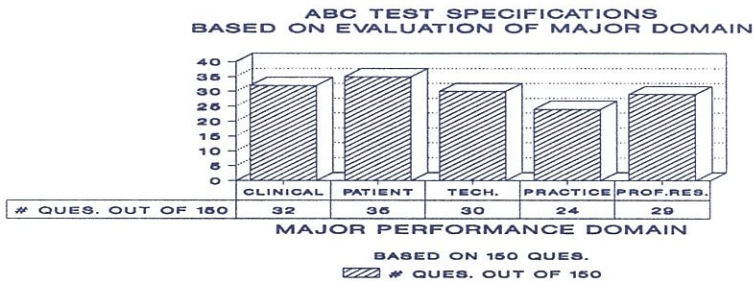
DATA FROM 1991 ROLE DELINEATION SURVEY

PHASE III TEST SPECIFICATIONS

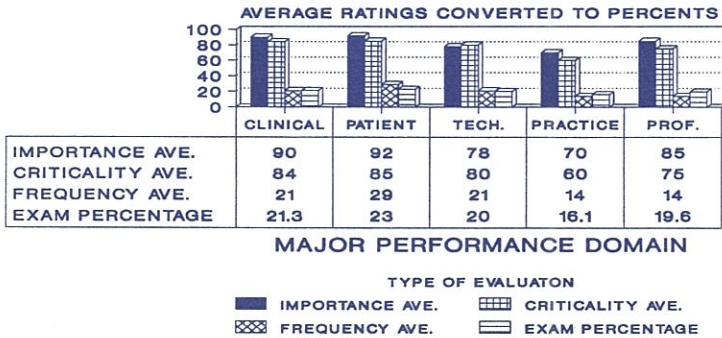
The final phase of the current study is the development of "test specifications" -- a listing of the percentage or number of questions that should be based on each of the validated performance domains. The three evaluation scales provide a direct, comprehensive assessment of a profession. The "Importance" rating reflects the relative value that each domain has in contributing to the successful performance of an entry-level practitioner. "Frequency" documents that tasks in a particular domain are actually performed on the job to the extent that it is meaningful to test for that domain. Finally, "Criticality" assesses the consequence of improper performance of tasks in a given domain. It directly addresses the question, "What harm will occur if the practitioner cannot perform this task adequately?"

Often in a profession, there are some tasks that may not be performed often but which may be highly critical. For example, the tasks in Professional Responsibility have high criticality but involve only 14% of an orthotist's and prosthetist's time. This high criticality rating suggests a need for testing of these tasks that may otherwise go unnoticed. Thus, combining these three ratings of each domain and each task provides a practical method of taking into account the summative judgments that these three values represent.

The importance, criticality and frequency ratings for each domain can be converted to percentages. Subsequently, these percentages are averaged to determine a percentage value for each domain. A listing of these percentages is referred to as a "test blueprint" or "test specification." These percentages are found in the graph below. For a written examination, these percentages can then be utilized to determine the number of questions that should appear on a test for each domain. For other types of examinations, the percentages serve as weights in the development process to ensure appropriate testing of tasks. The number of items recommended for testing each domain is listed on the following page. The number of items per domain is based on a 150 question examination.



ABC SURVEY DATA EVALUATION OF MAJOR DOMAINS



DATA FROM 1991 ROLE DELINEATION SURVEY

SUMMARY

From a psychometric analysis of the tasks, knowledges, and skills developed and validated as well as from an examination of the results, there is a need for three different examinations. A written examination is needed to assess the knowledges. The skills need to be assessed by a practical examination. There are also tasks which involve an orthotist and prosthetist making a decision based on the type of information available. These tasks would be best assessed by a clinical competency examination also known as a simulation.

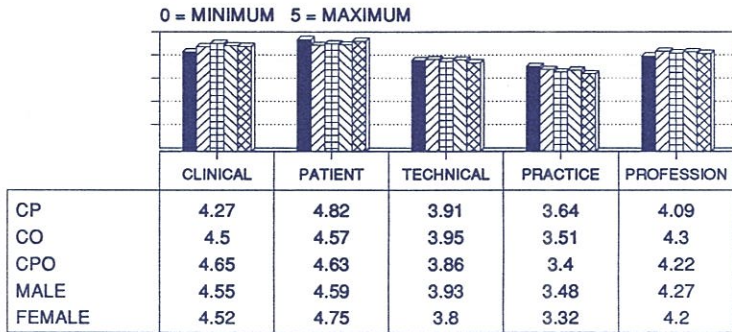
In addition to identifying the tasks performed in each performance domain, the role delineation panel also reviewed the major knowledge and skills required for the performance of each task. The next section of the report lists the tasks, the survey data relating to each task, and the knowledge and skills required to perform each task. Also included in each domain is the number of questions which should be generated per task for a 150 question examination. The number of questions also provide weights for two other examinations which will be developed. This further breakdown ensures that proper emphasis is given to each task. Responsible test development requires a logical progression from job analysis to the development of test specifications as a part of any valid and defensible certification examination program. This document will serve as the resource in the development of examination questions that are directly related to the orthotist and prosthetist profession, as well as important validation evidence for the examination as a whole.

**American Board for Certification
in Orthotics & Prosthetics, Inc.**

Role Delineation Study

- I. Clinical Assessment
- II. Patient Management
- III. Technical Implementation
- IV. Practice Management
- V. Professional Responsibility

EVALUATION OF DOMAIN IMPORTANCE BY DIFFERENT GROUPS



MAJOR PERFORMANCE DOMAIN



ABC ROLE DELINEATION SURVEY-1991

EVALUATION AND ALLOCATION OF QUESTIONS PER TASK ABC DOMAIN: CLINICAL ASSESSMENT

TASK#	IMPORTANCE		CRITICALITY		FREQUENCY		%	#ITEMS
	AVG.	S.D.	AVG.	S.D.	AVG.	S.D.		
1	4.21	0.86	3.68	1.40	4.45	0.70	10.99%	4
2	4.55	0.68	3.93	0.96	4.62	0.59	11.68%	4
3	4.44	0.76	3.95	0.95	4.53	0.67	11.51%	4
4	4.53	0.72	4.00	0.91	4.58	0.62	11.68%	4
5	4.18	0.92	3.48	1.08	4.43	0.72	10.78%	3
6	4.31	0.77	3.48	1.06	4.40	0.66	10.86%	3
7	3.89	1.04	3.47	1.08	3.99	0.97	10.12%	3
8	4.05	0.96	3.53	1.08	4.03	0.96	10.35%	3
9	4.66	0.62	4.12	0.99	4.73	0.53	12.05%	4
TOTAL:								32

1991 ABC Role Delineation Study

I. CLINICAL ASSESSMENT

TASK 1:

Obtain a history of the patient by interview and review of available records in order to determine the need for a specific device.

Knowledges:

1. Knowledge of referral documents.
2. Knowledge of medical terminology.
3. Knowledge of human musculo-skeletal anatomy.
4. Knowledge of functional anatomy (kinesiology).
5. Knowledge of circulatory pathologies as they relate to prosthetics and orthotics.
6. Knowledge of neuromuscular pathologies as they relate to prosthetics and orthotics.
7. Knowledge of dermatologic pathologies as they relate to prosthetics and orthotics.
8. Knowledge of arthritic pathologies as they relate to prosthetics and orthotics.
9. Knowledge of metabolic pathologies as they relate to prosthetics and orthotics.
10. Knowledge of infectious pathologies as they relate to prosthetics and orthotics.
11. Knowledge of developmental pathologies as they relate to prosthetics and orthotics.
12. Knowledge of congenital pathologies as they relate to prosthetics and orthotics.
13. Knowledge of traumatic pathologies as they relate to prosthetics and orthotics.
14. Knowledge of psychological pathologies as they relate to prosthetics and orthotics.

15. Knowledge of range of motion and testing techniques.
16. Knowledge of muscle strength and testing techniques.
17. Knowledge of mathematics.
18. Knowledge of biomechanics.
19. Knowledge of componentry.
20. Knowledge of footwear.
21. Knowledge of related clothing.
22. Knowledge of materials science.

Skills:

1. Skill in interviewing and asking pertinent questions.
2. Skill in interpreting the information for recording.

TASK 2:

Evaluate the patient visually by observing gait, coordination, present device if available, and other physical characteristics in order to supplement the history and physical examination.

Knowledges:

1. Knowledge of referral documents.
2. Knowledge of medical terminology.
3. Knowledge of human musculo-skeletal anatomy.
4. Knowledge of functional anatomy (kinesiology).
5. Knowledge of circulatory pathologies as they relate to prosthetics and orthotics.
6. Knowledge of neuromuscular pathologies as they relate to prosthetics and orthotics.
7. Knowledge of dermatologic pathologies as they relate to prosthetics and orthotics.

8. Knowledge of arthritic pathologies as they relate to prosthetics and orthotics.
9. Knowledge of metabolic pathologies as they relate to prosthetics and orthotics.
10. Knowledge of infectious pathologies as they relate to prosthetics and orthotics.
11. Knowledge of developmental pathologies as they relate to prosthetics and orthotics.
12. Knowledge of congenital pathologies as they relate to prosthetics and orthotics.
13. Knowledge of traumatic pathologies as they relate to prosthetics and orthotics.
14. Knowledge of psychological pathologies as they relate to prosthetics and orthotics.
15. Knowledge of range of motion and testing techniques.
16. Knowledge of muscle strength and testing techniques.
17. Knowledge of mechanics.
18. Knowledge of biomechanics.
19. Knowledge of componentry.
20. Knowledge of footwear.
21. Knowledge of related clothing.
22. Knowledge of materials science.
23. Knowledge of gait deviations.

Skills:

1. Skill in interpreting gait deviations.
2. Skill in interpreting other physical characteristics.
3. Skill in interpreting gait deviations induced by the prosthetic or orthotic device.
4. Skill in interpreting abnormal neuromuscular function during activity (upper extremity).

TASK 3:

Examine the patient manually, in order to determine skin condition, range of joint motion, and muscle strength to verify and expand information.

Knowledges:

1. Knowledge of referral documents.
2. Knowledge of medical terminology.
3. Knowledge of human musculo-skeletal anatomy.
4. Knowledge of functional anatomy (kinesiology).
5. Knowledge of circulatory pathologies as they relate to prosthetics and orthotics.
6. Knowledge of neuromuscular pathologies as they relate to prosthetics and orthotics.
7. Knowledge of dermatologic pathologies as they relate to prosthetics and orthotics.
8. Knowledge of arthritic pathologies as they relate to prosthetics and orthotics.
9. Knowledge of metabolic pathologies as they relate to prosthetics and orthotics.
10. Knowledge of infectious pathologies as they relate to prosthetics and orthotics.
11. Knowledge of developmental pathologies as they relate to prosthetics and orthotics.
12. Knowledge of congenital pathologies as they relate to prosthetics and orthotics.
13. Knowledge of traumatic pathologies as they relate to prosthetics and orthotics.
14. Knowledge of psychological pathologies as they relate to prosthetics and orthotics.

15. Knowledge of range of motion and testing techniques.
16. Knowledge of muscle strength and testing techniques.
17. Knowledge of mechanics.
18. Knowledge of biomechanics.
19. Knowledge of componentry.
20. Knowledge of footwear.
21. Knowledge of related clothing.
22. Knowledge of materials science.
23. Knowledge of ethical standards (proper draping and handling).
24. Knowledge of proper examination techniques.
25. Knowledge of infectious diseases and prevention of transmission.

Skills:

1. Skill in examination techniques.
2. Skill in appropriate handling of the patients relative to their disabilities.

TASK 4:

Determine the needs of the patient by integrating the information obtained from history, examination, and observation in order to assess the specific needs of the individual patient.

Knowledges:

1. Knowledge of referral documents.
2. Knowledge of medical terminology.
3. Knowledge of human musculo-skeletal anatomy.
4. Knowledge of functional anatomy (kinesiology).
5. Knowledge of circulatory pathologies as they relate to prosthetics and orthotics.

6. Knowledge of neuromuscular pathologies as they relate to prosthetics and orthotics.
7. Knowledge of dermatologic pathologies as they relate to prosthetics and orthotics.
8. Knowledge of arthritic pathologies as they relate to prosthetics and orthotics.
9. Knowledge of metabolic pathologies as they relate to prosthetics and orthotics.
10. Knowledge of infectious pathologies as they relate to prosthetics and orthotics.
11. Knowledge of developmental pathologies as they relate to prosthetics and orthotics.
12. Knowledge of congenital pathologies as they relate to prosthetics and orthotics.
13. Knowledge of traumatic pathologies as they relate to prosthetics and orthotics.
14. Knowledge of psychological pathologies as they relate to prosthetics and orthotics.
15. Knowledge of range of motion and testing techniques.
16. Knowledge of muscle strength and testing techniques.
17. Knowledge of mechanics.
18. Knowledge of biomechanics.
19. Knowledge of componentry.
20. Knowledge of footwear.
21. Knowledge of related clothing.
22. Knowledge of materials science.
23. Knowledge of ethical standards (proper draping and handling).
24. Knowledge of proper examination techniques.

25. Knowledge of infectious diseases and prevention of transmission.

Skills:

1. Skill in interpreting and coordinating data.

TASK 5:

Determine from the patient, by verbal interaction, his or her needs and expectations, in order to provide an appropriate and realistic prescription.

Knowledges:

1. Knowledge of occupational requirements.
2. Knowledge of other physical limitations of individuals with related disabilities.
3. Knowledge of physical limitations of componentry.

Skills:

1. Skill in interpreting and coordinating data.

TASK 6:

Provide information to the patient, family, and involved health professionals regarding potential advantages and disadvantages of a device in order to assure understanding of the treatment plan and cooperation of the individuals involved.

Knowledges:

1. Knowledge of communication techniques.
2. Knowledge of privileged information techniques.
3. Knowledge of sales and marketing psychology.
4. Knowledge of business considerations.
5. Knowledge of component limitations and materials, and application relative to the patient's specific personal situation.

Skills:

1. Skill in communication - verbal and written.
2. Skill in appropriate salesmanship.

TASK 7:

Analyze the data obtained by empirical methods in order to prepare a recommendation.

Knowledges:

1. Knowledge of component limitations and materials application relative to the patient's specific personal situation.
2. Knowledge of component and material cost.
3. Knowledge of reimbursement considerations

Skills:

1. Skill in interpreting and coordinating data.

TASK 8:

Develop a treatment protocol for the specific patient by review of data obtained in order to determine a specific device recommendation and plan for its use.

Knowledges:

1. Knowledge of other related professions.
2. Knowledge of training.
3. Knowledge of progression of training.
4. Knowledge of potential uses of device.
5. Knowledge of care and maintenance of device.
6. Knowledge of component and material cost.
7. Knowledge of reimbursement considerations.

Skills:

1. Skill in interpreting and coordinating data.

TASK 9:

Obtain and record accurately appropriate measurements and other data from the patient in order to produce the device recommended.

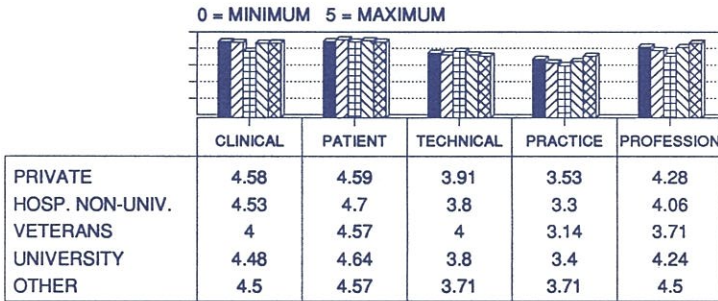
Knowledges:

1. Knowledge of surface anatomy.
2. Knowledge of what needs to be measured.
3. Knowledge of measurement tools and methods.
4. Knowledge of how to record data.
5. Knowledge of component and material cost.
6. Knowledge of reimbursement considerations.

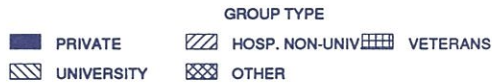
Skills:

1. Skill in proper patient positioning.
2. Skill in use of mechanical and electrical measuring devices.
3. Skill in use and handling of measuring and molding materials and devices.
4. Skill in safe removal of negative impressions.
5. Skill in preparation of information for further processing (i.e., negative impressions, delineations).
6. Skill in appropriate and safe clean-up procedures.

EVALUATION OF DOMAIN IMPORTANCE BY DIFFERENT GROUPS



MAJOR PERFORMANCE DOMAIN



ABC ROLE DELINEATION SURVEY-1991

EVALUATION AND ALLOCATION OF QUESTIONS PER TASK ABC DOMAIN: PATIENT MANAGEMENT

TASK#	IMPORTANCE		CRITICALITY		FREQUENCY		%	#ITEMS
	AVG.	S.D.	AVG.	S.D.	AVG.	S.D.		
1	4.65	0.60	4.11	0.93	4.73	0.48	9.38%	4
2	4.52	0.70	4.06	0.95	4.57	0.64	9.14%	3
3	4.65	0.60	4.14	0.93	4.65	0.55	9.34%	3
4	4.70	2.61	4.02	1.01	4.69	2.08	9.32%	3
5	4.56	0.65	3.90	0.98	4.61	0.63	9.08%	3
6	4.51	0.72	4.11	2.68	4.55	0.67	9.16%	3
7	4.61	0.62	4.41	0.86	4.62	0.60	9.48%	4
8	4.34	0.77	3.47	1.19	4.61	0.59	8.64%	3
9	4.16	0.82	3.60	0.97	4.27	0.70	8.36%	3
10	4.60	0.58	4.10	.91	4.56	0.60	9.22%	3
11	4.54	2.04	3.62	1.08	4.60	0.61	8.87%	3
							TOTAL	35

1991 ABC Role Delineation Study

II. PATIENT MANAGEMENT

TASK 1:

To be able to measure a patient by utilizing proper instruments and tests in order to compile data to be used in prosthetic and orthotic design and fabrication.

Knowledges:

1. Knowledge of measuring instruments.
2. Knowledge of measuring systems.
3. Knowledge of measurement techniques for upper limb orthotics, lower limb orthotics, and spinal orthotics.
4. Knowledge of measurement techniques for upper limb prosthetics and lower limb prosthetics.
5. Knowledge of muscle strength testing.
6. Knowledge of range of motion and its measurement.
7. Knowledge of anatomical landmarks.

Skills:

1. Skill in using measurement instruments.
2. Skill in measuring.
3. Skill in measuring for lower limb orthotics, upper limb orthotics, and spinal orthotics.
4. Skill in measuring for upper limb prosthetics and lower limb prosthetics.
5. Skill in measuring muscle strength.
6. Skill in measuring range of motion.

TASK 2:

To be able to manipulate the patient's body or body segments to provide correction, position, or deformation in order to achieve the most appropriate information.

Knowledges:

1. Knowledge of correct anatomical position.
2. Knowledge of anatomy.
3. Knowledge of pathologies and their effect on body segments.
4. Knowledge of impression-taking positions for lower limb, upper limb, and spinal orthotics.
5. Knowledge of impression-taking positions for lower and upper limb prosthetics.
6. Knowledge of biomechanics.
7. Knowledge of skill pressure tolerance.

Skills:

1. Skill in positioning body segments.

TASK 3:

Replicate the patient's body or body segments in order to provide an accurate anatomical impression to be used in fabrication of an orthotic or prosthetic device.

Knowledges:

1. Knowledge of anatomy.
2. Knowledge of prosthetic design.
3. Knowledge of orthotic design.
4. Knowledge of prosthetic impression-taking techniques.

5. Knowledge of orthotics impression-taking techniques.
6. Knowledge of impression-taking materials.
7. Knowledge of safety and infection control procedures.
8. Knowledge of impression-taking devices and equipment.

Skills:

1. Skill in anatomical identification.
2. Skill in using impression-taking materials.
3. Skill in orthotic impression-taking techniques.
4. Skill in prosthetic impression-taking techniques.
5. Skill in using impression-taking devices and equipment.
6. Skill in communication procedures.
7. Skill in applying safety and infection control procedures.

TASK 4:

To be able to demonstrate on a patient a proper fitting prosthetic/orthotic design by utilizing accepted prosthetic/orthotic techniques in order to achieve optimum fit, function, and cosmesis.

Knowledges:

1. Knowledge of anatomy.
2. Knowledge of biomechanics.
3. Knowledge of skin tolerance to pressure.
4. Knowledge of pathologies.
5. Knowledge of prosthetic design criteria.
6. Knowledge of orthotic design criteria.

7. Knowledge of materials and components.
8. Knowledge of volumetric control.
9. Knowledge of suspension techniques.
10. Knowledge of tissue management.
11. Knowledge of safety procedures.

Skills:

1. Skill in communication.
2. Skill in recognizing skin pressures.
3. Skill in achieving proper weight distribution.
4. Skill in proper material component utilization.
5. Skill in recognizing appropriateness of a prosthetic or orthotic design.
6. Skill in recognizing the effectiveness of a prosthetic or orthotic device.
7. Skill in evaluating the fit of an orthotic or prosthetic design.

TASK 5:

To be able to evaluate a patient's gait by visual observation in order to achieve optimum prosthetic or orthotic function.

Knowledges:

1. Knowledge of anatomy.
2. Knowledge of normal human locomotion.
3. Knowledge of pathological gait/motion.
4. Knowledge of safety procedures.
5. Knowledge of alignment devices and techniques.
6. Knowledge of materials and components.

7. Knowledge of biomechanics.

Skills:

1. Skill in gait/motion analysis.
2. Skill in utilizing alignment devices and techniques.
3. Skill in proper utilization of materials and components.
4. Skill in communication.
5. Skill in recognizing the optimum gait.

TASK 6:

To be able to achieve optimum alignment of a patient's prosthetic/orthotic device by evaluation of the sagittal, transverse, and coronal planes in order to provide maximum function.

Knowledges:

1. Knowledge of the three planes of motion.
2. Knowledge of anatomy.
3. Knowledge of normal human locomotion.
4. Knowledge of pathological gait/motion.
5. Knowledge of safety procedures.
6. Knowledge of alignment devices and techniques.
7. Knowledge of materials and components.
8. Knowledge of biomechanics.

Skills:

1. Skill in biomechanical application.
2. Skill in gait/motion analysis.

3. Skill in utilizing alignment devices and techniques.
4. Skill in proper utilization of materials and components.
5. Skill in applying safety procedures.
6. Skill in recognizing the optimum gait and alignment.
7. Skill in communication.

TASK 7:

To be able to provide a safe environment for patient and practitioner by following proper safety guidelines in order to prevent disease and/or injury.

Knowledges:

1. Knowledge of safety procedures.
2. Knowledge of safety equipment.
3. Knowledge of infection control and disease transmission.
4. Knowledge of pathologies.
5. Knowledge of first aid.

Skills:

1. Skill in applying safety procedures.
2. Skill in safety equipment utilization.
3. Skill in communicating safety information.
4. Skill in recognizing and preventing potential safety problems.
5. Skill in applying first aid.

TASK 8:

To be able to demonstrate proper documentation of patient history by established record keeping techniques in order to verify patient care.

Knowledges:

1. Knowledge of grammar and spelling.
2. Knowledge of medical terminology.
3. Knowledge of charting techniques.
4. Knowledge of legal requirements.
5. Knowledge of what is appropriate information.

Skills:

1. Skill in documentation.

TASK 9:

To be able to provide continuing patient care in order to assure proper fit and function of the prosthetic/orthotic device by periodic evaluation.

Knowledges:

1. Knowledge of a pathological prognosis.
2. Knowledge of patient reliability.
3. Knowledge of the prosthetic/orthotic prognosis.
4. Knowledge of the involvement of other health care personnel.

Skills:

1. Skill in communication.
2. Skill in evaluation.

TASK 10:

To be able to determine the solution to a patient's prosthetic/orthotic problem by appropriate evaluation in order to achieve proper function.

Knowledges:

1. Knowledge of anatomy.
2. Knowledge of biomechanics.
3. Knowledge of components and materials.
4. Knowledge of skin tolerance and tissue management.
5. Knowledge of prosthetic/orthotic design.
6. Knowledge of prosthetic/orthotic fit.
7. Knowledge of gait.
8. Knowledge of pathology.
9. Knowledge of patient individuality.

Skills:

1. Skill in biomechanical application.
2. Skill in deductive reasoning.
3. Skill in prosthetic/orthotic fit evaluation.
4. Skill in gait analysis.
5. Skill in material and component utilization.
6. Skill in communication.

TASK 11:

To be able to inform the patient of the various procedures you are about to perform and/or explain his/her role and responsibilities regarding these procedures by utilizing appropriate communication skills in order to achieve successful fabrication and utilization of the prosthesis/orthosis.

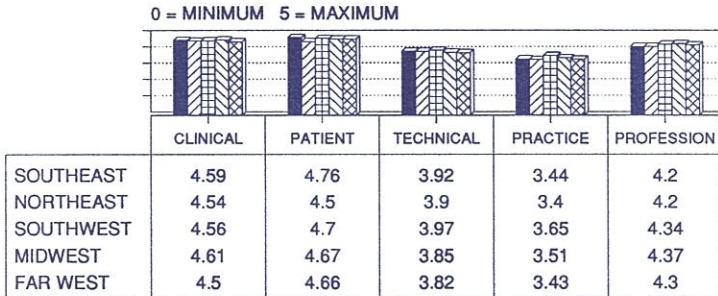
Knowledges:

1. Knowledge of prosthetic and orthotic procedures and techniques.

Skills:

1. Skill in communication.

EVALUATION OF DOMAIN IMPORTANCE BY DIFFERENT GEOGRAPHIC REGIONS



MAJOR PERFORMANCE DOMAIN



ABC ROLE DELINEATION SURVEY-1991

EVALUATION AND ALLOCATION OF QUESTIONS PER TASK ABC DOMAIN: TECHNICAL IMPLEMENTATION

TASK#	IMPORTANCE		CRITICALITY		FREQUENCY		%	#ITEMS
	AVG.	S.D.	AVG.	S.D.	AVG.	S.D.		
1	4.23	0.78	3.73	1.01	4.49	1.64	14.07%	4
2	4.63	0.61	4.12	0.95	4.65	0.63	15.15%	5
3	4.55	0.66	4.18	0.92	4.65	0.58	15.12%	5
4	3.96	1.00	3.65	1.14	4.10	0.95	13.23%	4
5	4.55	0.70	4.19	0.91	4.54	0.67	15.00%	4
6	3.87	1.00	3.52	1.14	3.89	1.00	12.75%	4
7	4.39	0.81	4.30	0.99	4.31	0.87	14.65%	4

TOTAL 30

1991 ABC Role Delineation Study

III. TECHNICAL IMPLEMENTATION

TASK 1:

Interpret data on measurement forms by reviewing numerical values in order to determine appropriate procedures.

Knowledges:

1. Knowledge of reduction equation.
2. Knowledge of clearances, spaces required by a specific device.
3. Knowledge of anatomy.
4. Knowledge of pertinent mathematics.
5. Knowledge of orthotic and prosthetic forms.
6. Knowledge of production schedules.

Skills:

1. Skill in data correlation.
2. Skill in following directions.
3. Skill in planning and organizing procedures.
4. Skill in managing time.

TASK 2:

Modify patient model by making necessary rectifications in order to ensure proper fit.

Knowledges:

1. Knowledge of rectification procedures as they relate to specific devices.
2. Knowledge of appropriate proportions specific to materials being used.
3. Knowledge of trimlines.

4. Knowledge of tissue characteristics (physiology).
5. Knowledge of anatomy.
6. Knowledge of modeling material characteristics.
7. Knowledge of fitting requirements.
8. Knowledge of desired end product.
9. Knowledge of modification tools.

Skills:

1. Skill in accurate measuring.
2. Skill in model modification.
3. Skill in using appropriate tools.
4. Skill in accurate delineation.

TASK 3:

Select appropriate materials and components based on patient criteria in order to ensure optimum strength, durability, and function.

Knowledges:

1. Knowledge of materials.
2. Knowledge of components.
3. Knowledge of material characteristics.
4. Knowledge of component characteristics.
5. Knowledge of patient criteria.
6. Knowledge of functional deficits.
7. Knowledge of manufacturer's expressed limitations.
8. Knowledge of item warranty and warranty limitations.

9. Knowledge of biomechanics.
10. Knowledge of product availability.

Skills:

1. Skill in communication.
2. Skill in efficient material utilization.

TASK 4:

Fabricate prescribed device by assembling selected materials in order to prepare for fitting.

Knowledges:

1. Knowledge of prescribed device.
2. Knowledge of biomechanics.
3. Knowledge of properties of materials.
4. Knowledge of equipment.
5. Knowledge of specific production sequences.
6. Knowledge of trimlines.
7. Knowledge of desired end product.
8. Knowledge of patient criteria.
9. Knowledge of baseline alignment standards.

Skills:

1. Skill in equipment utilization.
2. Skill in achieving alignment.
3. Skill in materials utilization.
4. Skill in assembly.

5. Skill in following directions.
6. Skill in problem solving.

TASK 5:

Evaluate a device to identify deviations from prescribed standards by its inspection in order to correct impaired fit and function.

Knowledges:

1. Knowledge of prescribed standards.
2. Knowledge of proper function.
3. Knowledge of reported deficiency.
4. Knowledge of proper fit.
5. Knowledge of components.
6. Knowledge of materials.
7. Knowledge of alignment.

Skills:

1. Skill in material modification.
2. Skill in equipment utilization.
3. Skill in inspection.
4. Skill in cosmetic restoration.
5. Skill in improvisation.
6. Skill in repairing components.
7. Skill in restoring optimum fit.

TASK 6:

Establish inspection systems to assess systematically appropriateness of technical procedures at various stages in order to reduce product deficiencies.

Knowledges:

1. Knowledge of specific production procedures.
2. Knowledge of acceptable standards.
3. Knowledge of appropriate component utilization.
4. Knowledge of appropriate material utilization.
5. Knowledge of desired end product.
6. Knowledge of alignment.
7. Knowledge of prescribed device.

Skills:

1. Skill in inspection.
2. Skill in differentiation (i.e., acceptable deficiencies/consequential deficiencies).

TASK 7:

Establish sound safety protocols for personnel in use of appropriate lab materials and machinery in order to achieve maximum safety.

Knowledges:

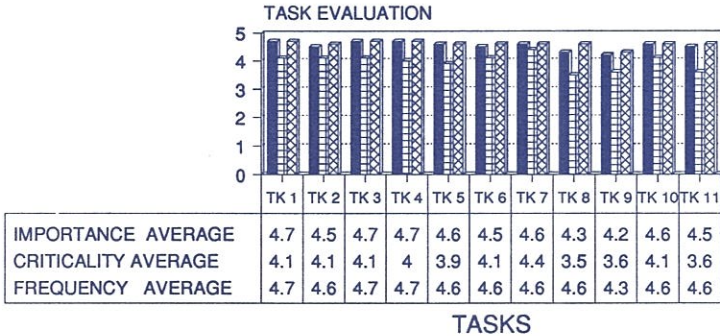
1. Knowledge of materials.
2. Knowledge of equipment.
3. Knowledge of safety equipment.
4. Knowledge of appropriate attire.
5. Knowledge of emergency procedures.

6. Knowledge of loss control.
7. Knowledge of infection control.
8. Knowledge of ergonomics.

Skills:

1. Skill in use of equipment.
2. Skill in use of materials.
3. Skill in use of protective devices.
4. Skill in identifying potentially hazardous situations.

ABC SURVEY TASK EVALUATION PATIENT MANAGEMENT



EVALUATION AREA



DATA FROM 1991 ROLE DELINEATION SURVEY

EVALUATION AND ALLOCATION OF QUESTIONS PER TASK ABC DOMAIN: PRACTICE MANAGEMENT

TASK#	IMPORTANCE		CRITICALITY		FREQUENCY		%	#ITEMS
	AVG.	S.D.	AVG.	S.D.	AVG.	S.D.		
1	4.40	0.68	3.75	0.99	4.50	0.57	21.19%	5
2	4.30	0.82	3.44	1.17	4.56	0.71	20.44%	5
3	3.99	1.35	3.07	1.26	4.13	0.99	18.76%	4
4	4.34	0.83	3.74	1.14	4.30	0.81	20.76%	5
5	4.02	0.94	3.26	1.20	3.98	0.96	18.85%	5
TOTAL								24

1991 ABC Role Delineation Study

IV. PRACTICE MANAGEMENT

TASK 1:

To be able to communicate information clearly concerning the patient to the appropriate people in order to achieve ultimate patient care.

Knowledges:

1. Knowledge of communication systems.
2. Knowledge of communication protocol.
3. Knowledge of information to be communicated.
4. Knowledge of target audience.

Skills:

1. Skill in verbal communication.
2. Skill in accurate recording.
3. Skill in maintaining professional decorum.
4. Skill in differentiating critical from trivial information.

TASK 2:

To be able to demonstrate proper documentation of patient history and financial records by established record keeping techniques in order to verify patient care and other pertinent records.

Knowledges:

1. Knowledge of record keeping systems.
2. Knowledge of financial systems.
3. Knowledge of HCPCS (Health Care Common Procedures Code System).
4. Knowledge of diagnostic coding system.

5. Knowledge of legal requirements.
6. Knowledge of 3rd party rules and regulations.

Skills:

1. Skill in comprehensive documentation.
2. Skill in filing system utilization.

TASK 3:

To be able to inform the patient of financial obligations and requirements for compliance to third party agencies by utilizing the appropriate means of communication in order to assure proper reimbursement.

Knowledges:

1. Knowledge of fee schedule.
2. Knowledge of HCPCS.
3. Knowledge of patient financial status.
4. Knowledge of 3rd party rules and regulations.
5. Knowledge of facility financial policy.

Skills:

1. Skill in communication.
2. Skill in financial counseling.
3. Skill in negotiation.

TASK 4:

To be able to establish procedures for patient care that comply with accepted medical/legal requirements by maintaining current education in these areas to provide appropriate patient care in order to avoid legal ramifications.

Knowledges:

1. Knowledge of medical/legal requirements.
2. Knowledge of medical/legal information sources.
3. Knowledge of medical/legal procedures and protocol

Skills:

1. Skill in interpersonal relations.
2. Skill in patient management.
3. Skill in documentation.
4. Skill in implementing medical/legal requirements and procedures.
5. Skill in communication.

TASK 5:

To be able to communicate roles and expectations of facility employees by providing documentation in order to create a professional cooperative working environment in order to improve patient care.

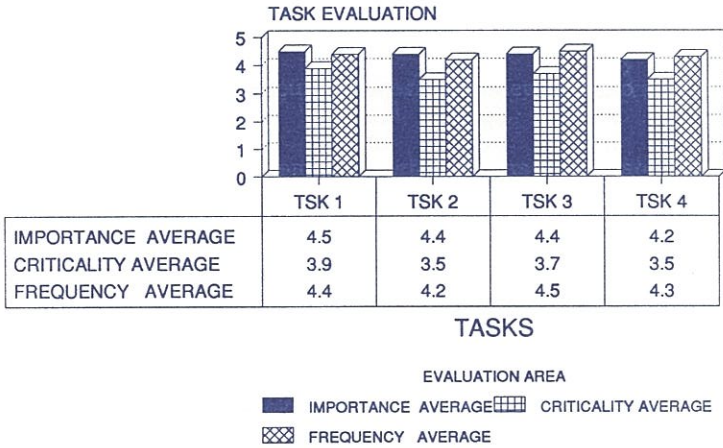
Knowledges:

1. Knowledge of labor laws.
2. Knowledge of position description.
3. Knowledge of facility policies and procedures.
4. Knowledge of facility hierarchy.

Skills:

1. Skill in communication.
2. Skill in documentation.
3. Skill in negotiation.
4. Skill in interpersonal relations.

ABC SURVEY TASK EVALUATION PROFESSIONAL RESPONSIBILITY



DATA FROM 1991 ROLE DELINEATION SURVEY

EVALUATION AND ALLOCATION OF QUESTIONS PER TASK ABC DOMAIN: PROFESSIONAL RESPONSIBILITY

TASK#	IMPORTANCE		CRITICALITY		FREQUENCY		%	#ITEMS
	AVG.	S.D.	AVG.	S.D.	AVG.	S.D.		
1	4.51	2.65	3.88	1.02	4.42	2.62	25.85	8
2	4.42	2.66	3.50	1.14	4.22	0.76	24.51%	7
3	4.38	0.82	3.71	1.18	4.52	0.92	25.45%	7
4	4.21	0.80	3.50	1.15	4.28	0.75	24.19%	7
Total								29

V. PROFESSIONAL RESPONSIBILITY

TASK 1:

To be able to select the most appropriate course of action when faced with patient related problems by applying their experience in order to recognize their limitations in providing appropriate patient care.

Knowledges:

1. Knowledge of patient.
2. Technical knowledge.
3. Psycho-social knowledge.
4. Medical/legal knowledge.
5. Business related knowledge.

Skills:

1. Skill in communication.

TASK 2:

To continue to provide optimum patient care by recognizing the need to pursue continuing education in order to remain current in practice.

Knowledges:

1. Knowledge of opportunities for continuing education and recognition of need to participate.

Skills:

1. Skill in time management.

TASK 3:

To provide ethical patient care by applying the ABC Canon of Ethics in order to maintain ethical professional services.

Knowledges:

1. Knowledge of ABC Canon of Ethics.
2. Knowledge of ethical conduct in medical community.

Skills:

1. Skill in implementation of standards.

TASK 4:

To be able to inform individuals involved in patient care by utilizing appropriate communication skills in order to provide them with current prosthetic and orthotic information.

Knowledges:

1. Knowledge of contemporary prosthetic and orthotic treatment techniques.

Skills:

1. Skill in communication.

END